



# IDS 200 P

## Electronic Pressure Switch with Flush Process Connection

- ▶ piezoresistive pressure sensor
- ▶ for foodstuff industry, pharmacy, chemical industry, etc.
- ▶ medium temperature up to 300 °C
- ▶ nominal pressure ranges from 0 ... 100 mbar up to 0 ... 40 bar

The electronic pressure switch IDS 200P is the successful combination of:

- precise process pressure transmitter
- intelligent pressure switch
- digital display



Any viscous and pasty media can be used which are compatible with stainless steel 1.4435 (316L).

Basic element of the IDS 200 is a piezoresistive stainless steel sensor. The 4-digit LED display shows the system pressure and supports programming the IDS 200 P using the foil keys. Set and reset points are freely configurable in the range 0 to 100 % of the nominal pressure. Display and housing of the IDS 200 P are rotatable, so that the position of the display can be easily adapted to unusual installation conditions.

All devices can be supplied with an optional cooling element for use with higher media temperature. The IDS 200 P has a flush diaphragm and can be delivered with inch thread, as well as with different process connections like clamp or dairy pipe.

Preferred areas of use are:

- ▶ pharmacy
- ▶ chemical industry
- ▶ foodstuff industry

Functions	<ul style="list-style-type: none"> <li>▶ configuration of display, including               <ul style="list-style-type: none"> <li>- current values</li> <li>- decimal point</li> </ul> </li> <li>▶ contacts adjustable, including               <ul style="list-style-type: none"> <li>- switch on / switch off points</li> <li>- hysteresis / window mode</li> <li>- switch on /switch off delay</li> </ul> </li> <li>▶ special functions / administration               <ul style="list-style-type: none"> <li>- access protection</li> <li>- min. / max. value memory</li> </ul> </li> </ul>	IDS 200P Electronic Pressure Switch
	 	

**Input pressure range**

Nominal pressure gauge [bar]	-1 ... 0 <sup>1</sup>	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs. <sup>1</sup> [bar]	-	-	-	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40
Permissible overpressure [bar]	3	0.5	0.5	1	1	3	3	6	6	20	20	20	60	60	100

**Output signal / Supply**

<b>Analogue output</b>			
Standard	2-wire: 4 ... 20 mA / $V_s = 18 \dots 41 V_{dc}$		Ex-protection: $V_s = 17 \dots 28 V_{dc}$
Optional	3-wire: 0 ... 10 V / $V_s = 15 \dots 36 V_{dc}$		4 ... 20 mA / $V_s = 19 \dots 30 V_{dc}$ (on request)
Accuracy			IEC 60770 <sup>2</sup>
	standard: nominal pressure > 0.4 bar:		BFSL
	nominal pressure ≤ 0.4 bar:		≤ ± 0.35 % FSO
Permissible load	option: nominal pressure > 0.4 bar:		≤ ± 0.175 % FSO
	current 2-wire: $R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$		≤ ± 0.50 % FSO
Response time	voltage 3-wire: $R_{min} = 10 k\Omega$		≤ ± 0.250 % FSO
	< 10 msec <sup>3</sup>		≤ ± 0.125 % FSO
<b>Contact<sup>4,5</sup></b>			
Number, types	1 or 2 independent PNP contacts		
Switching performance	standard: contact rating max. 125 mA, short-circuit resistance Ex-protection: max. switching current <sup>6</sup> : 70 mA; max. permissible inductivity: 4.7 mH		
Accuracy of contacts			IEC 60770 <sup>2</sup>
	standard: nominal pressure > 0.4 bar:		BFSL
	nominal pressure ≤ 0.4 bar:		≤ ± 0.35 % FSO
Repeatability	option: nominal pressure > 0.4 bar:		≤ ± 0.175 % FSO
	≤ ± 0.1 % FSO		≤ ± 0.50 % FSO
Switching frequency	max. 10 Hz		
Switching cycles	> 100 x 10 <sup>6</sup>		
Delay time	0 ... 100 sec		

**Thermal errors (Offset and Span)<sup>7</sup>**

Nominal pressure $P_N$ [bar]	-1 ... 0	≤ 0.1	≤ 0.25	≤ 0.4	≤ 1.0	> 1.0
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 1	≤ ± 0.75
TC, average [% FSO / 10 K]	± 0.12	± 0.4	± 0.3	± 0.2	± 0.15	± 0.12
in compensated range [°C]	0 ... 70		0 ... 50			0 ... 70

**Electrical protection**

Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Option Ex-protection only for 4 ... 20 mA / 2-wire AX11-DS 200 P	zone (0) 1: II (1) 2 G EEx ia IIC T4 safety technical maximum values: $V_i = 28 V$ , $\Sigma I_i = 93 mA$ , $\Sigma P_i = 660 mW$

**Display**

Type	4-digit, red LED display, digit height 7 mm, digit width 4.85 mm (angle 10 °)
Range	-1999 ... +9999
Accuracy	0.1 % ± 1 digit
Digital damping	0.3 ... 30 sec (programmable)
Measured value update	0.0 ... 10 sec (programmable)

<sup>1</sup> for vacuum ranges and nominal pressure abs. the max. medium temperature is 70 °C

<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>3</sup> with 3-wire version 4 ... 20 mA the response time is 1 sec

<sup>4</sup> with connector DIN 43650 and output 4 ... 20 mA / 2-wire max. 1 contact possible; with 0 ... 10 V / 3-wire no contact possible

<sup>5</sup> with Ex-protection max. 1 contact possible

<sup>6</sup> the real switching current in the application depends on the power supply unit

<sup>7</sup> an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions

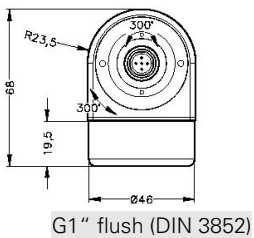
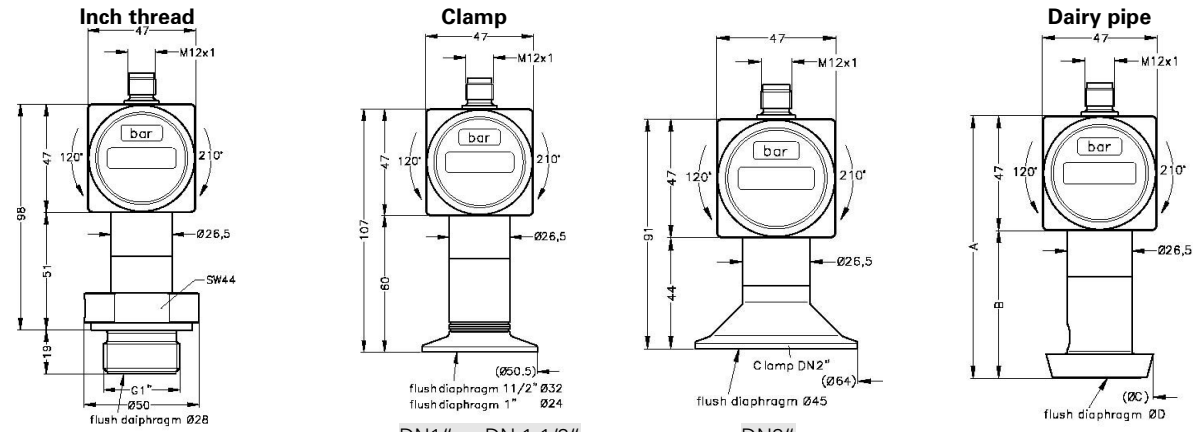
**Mechanical stability**

Vibration	5 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

**Permissible temperatures**

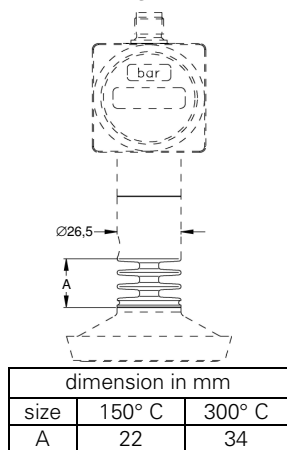
Medium	-25 ... 125 °C <sup>1,8</sup>	
Electronics / environment	-25 ... 85 °C	Ex-protection: -25 ... 70 °C
Storage	-40 ... 85 °C	

**Mechanical connection**



DN1" or DN 1 1/2" (ISO 2852)

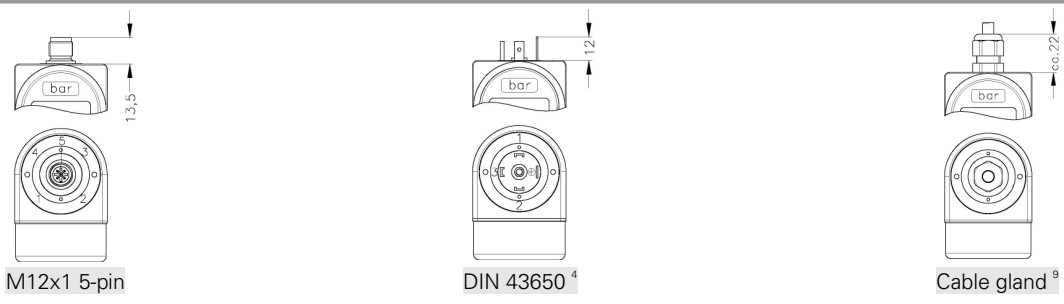
**Cooling element**



dimensions in mm			
size	DN 25	DN 40	DN 50
A	107	89	89
B	71	53	53
C	44	56	68,5
D	24	32	45

⇒ Ex-protection: total length increases by 20 mm!

**Electrical connection**



<sup>8</sup> with optional cooling element its maximum permissible temperature is valid

<sup>9</sup> different cable types and lengths available; standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube

### Filling fluids

Standard	silicon oil
Optional	food compatible oil (with FDA approval) / Halocarbon / others on request

### Materials

Pressure port	stainless steel 1.4435 (316L)
Housing	stainless steel 1.4301 (304)
Display housing	PA 6.6, Polycarbonate
Seals (media wetted)	inch thread: FKM / clamp and dairy pipe: without / others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

### Miscellaneous

Current consumption (without contacts)	signal output current: max. 25 mA signal output voltage: max. 18 mA
Weight	approx. 160 ... 250 g
Installation position	any <sup>10</sup>
Operational life	> 100 x 10 <sup>6</sup> cycles
Ingress protection	IP 65

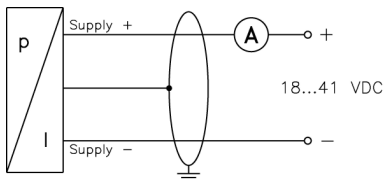
### Pin configuration

Electrical connection		M12x1 plastic (5-pin)	M12x1 metal (5-pin)	DIN 43650	cable colours (DIN 47100)
2-wire-system	Supply +	1	1	1	white
	Supply -	3	3	2	brown
	Contact 1	4	4	3	grey
	Contact 2	5	5	-	pink
	Ground	via pressure port	plug housing	ground contact	yellow / green (shield)
3-wire-system	Supply +	1	1	1	white
	Supply -	3	3	2	brown
	Signal +	2	2	3	green
	Contact 1	4	4	-	grey
	Contact 2	5	5	-	pink
	Ground	via pressure port	plug housing	ground contact	yellow / green (shield)

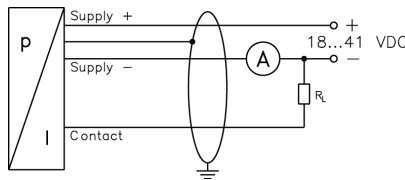
### Wiring diagrams

2-wire-system (current) (for Ex-protection supply is  $V_s = 17 \dots 28 V_{DC}$ ; max. 1 contact possible)

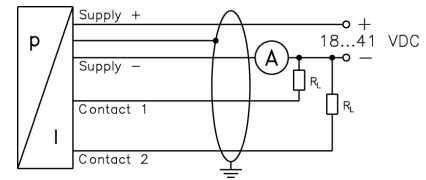
without contact



1 contact

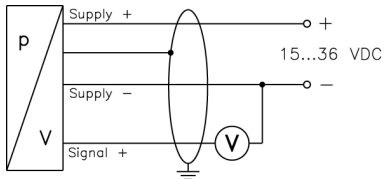


2 contacts

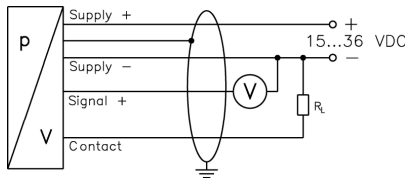


3-wire-system (current)

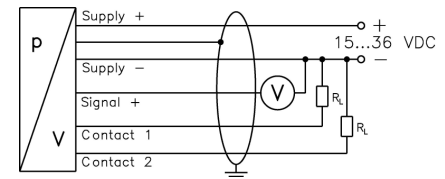
without contact



1 contact



2 contacts



<sup>10</sup> Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviation in the zero point for pressure ranges  $\leq 1$  bar.

