



DS 246

Electronic Pressure Switch with Flush Ceramic Sensor



- ▶ pressure port in stainless steel, PVC, or PVDF
- ▶ 1 analogue output and up to 2 contacts
- ▶ display and housing rotatable
- ▶ nominal pressure ranges from 0 ... 160 mbar up to 0 ... 60 bar

The electronic pressure switch DS 246 is the successful combination of:

- screw-in transmitter
- intelligent pressure switch
- digital display unit

Compared to the universally used basic type DS 200 the DS 246 has a mechanically and chemically robust, semi-flush ceramic sensor instead of a stainless steel sensor. Thus, the DS 246 is especially suitable for viscous, pasteous or highly contaminated media. The optional PVDF or PVC pressure port covers applications for most of aggressive media where stainless steel is not resistant.

The 4-digit LED display shows the system pressure and supports programming the DS 246 using the foil keys. Display and housing of the DS 246 are rotatable, so that the position of the display can be easily adapted to unusual installation conditions. Set and reset points are freely configurable in the range 0 to 100 % of the nominal pressure range.

- ▶ configuration of display, including
 - current values
 - decimal point
- ▶ contacts adjustable, including
 - switch on / switch off points
 - hysteresis / window mode
 - switch on /switch off delay
- ▶ special functions / administration
 - access protection
 - min. / max. value memory
- ▶ option Ex-version (only for 4 ... 20 mA / 2-wire) TÜV 02 ATEX 1841

Functions



DS 246
Electronic Pressure Switch

TECHNICAL DATA

Input pressure range ¹														
Pressure port	G1 1/2"					G3/4"								
Nominal pressure gauge [bar]	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40 ²	60 ²
Level [mWC]	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Permissible overpressure [bar]	0.6	0.6	1.5	1.5	3	7	7	12	12	25	50	50	120	120

Output signal / Supply		
Analogue output		
Standard	2-wire: 4 ... 20 mA / $V_s = 18 \dots 41 V_{DC}$	Ex-protection: $V_s = 17 \dots 28 V_{DC}$
Optional (only G3/4")	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 ³ : $\leq \pm 0.5\%$ FSO	BFSL: $\leq \pm 0.25\%$ FSO
Permissible load	current 2-wire: $R_{max} = [(V_s - V_{smin}) / 0.02] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$	
Response time	< 10 msec ⁴	
Contact ^{5,6}		
Number, types	1 or 2 independent PNP contacts	
Switching current	standard: contact rating max. 125 mA, short-circuit resistance Ex-protection: max. switching current ⁷ : 70 mA; max. permissible inductivity: 4.7 mH	
Accuracy of contacts	IEC 60770 ³ : $\leq \pm 0.5\%$ FSO	BFSL: $\leq \pm 0.25\%$ FSO
Repeatability	$\leq \pm 0.2\%$ FSO	
Switching frequency	max. 10 Hz	
Switching cycles	> 100 x 10 ⁶	
Delay time	0 ... 100 sec	

Thermal effects	
Thermal error for offset and span in compensated range	$\leq \pm 0.2\%$ FSO / 10 K -25 ... 85 °C

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 with 4 ... 20 mA / 2-wire AX11-DS 246	stainless steel pressure port: zone (0) 1: II (1) 2 G EEx ia IIC T4 plastic pressure port: zone 1: II 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 % \pm 1 digit
Digital damping	0.3 ... 30 sec (programmable)
Measured value update	0.0 ... 10 sec (programmable)

¹ G1 1/2" from 0.16 bar up to 1 bar; G3/4" from 0.6 bar up to 60 bar

² only for pressure ports in stainless steel

³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

⁴ with 3-wire version 4 ... 20 mA the response time is 1 sec

⁵ with connector DIN 43650 and output 4 ... 20 mA / 2-wire max. 1 contact possible; with 0 ... 10 V / 3-wire no contact possible

⁶ with Ex-protection max. 1 contact possible

⁷ the real switching current in the application depends on the power supply unit

TECHNICAL DATA

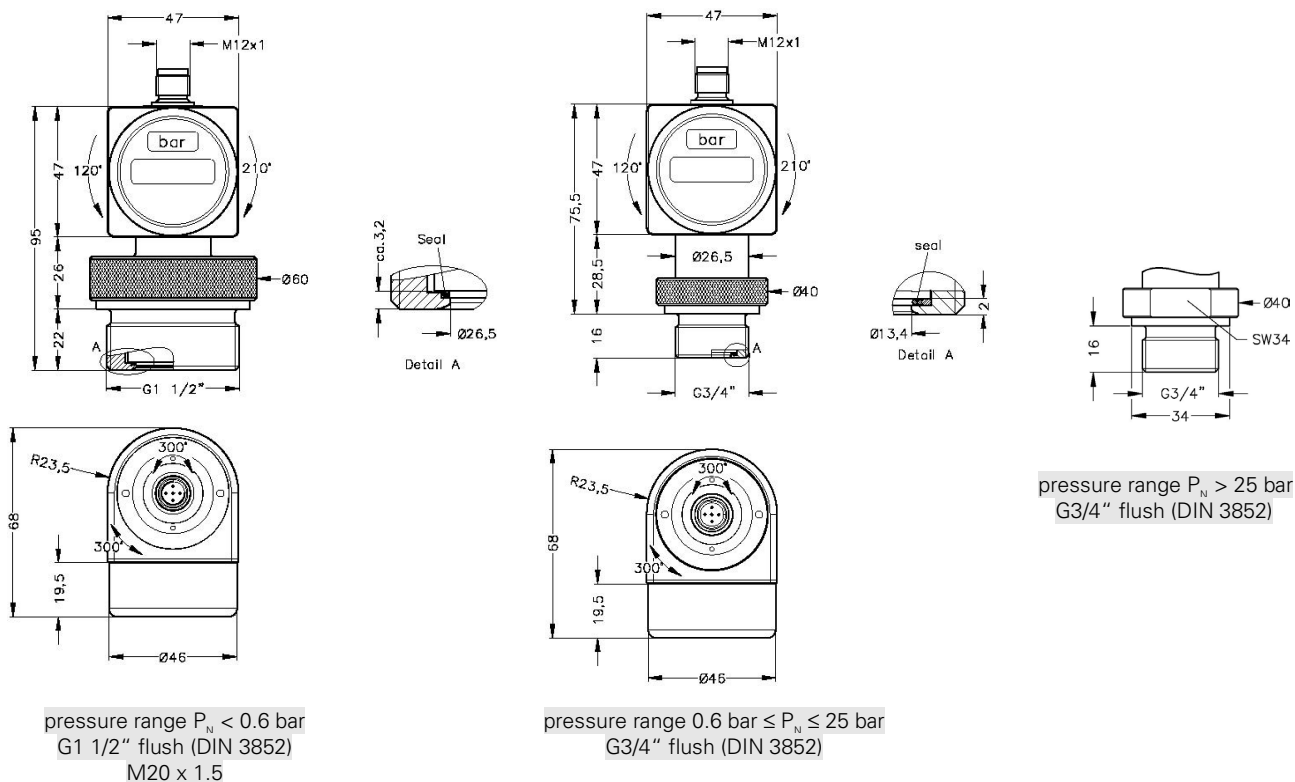
Mechanical stability

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

Permissible temperatures^B

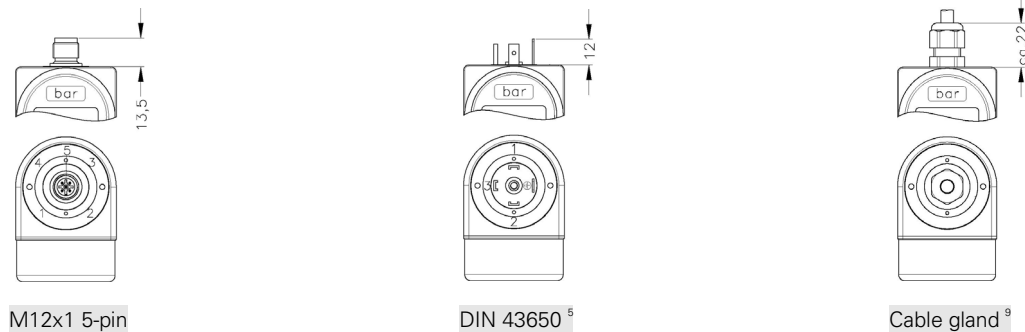
Medium	-25 ... 135 °C	
Electronics / environment	-25 ... 85 °C	Ex-protection: -25 ... 70 °C
Storage	-40 ... 85 °C	

Mechanical connection



- ⇒ PVC and PVDF versions are 3.5 mm (G1 1/2") resp. 3 mm (G3/4") longer!
- ⇒ Ex protection with G3/4": total length increases by 17.5 mm!

Electrical connection



^B for pressure port of PVC the maximum permissible temperature is 50 °C

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

TECHNICAL DATA

Materials		
Pressure port / housing	pressure port G 3/4"	pressure port G1 1/2"
	standard: stainless steel 1.4571 (316Ti) / stainless steel 1.4301 (304) optional ¹⁰ : PVC grey / PVC grey PVDF / PVDF	standard: stainless steel 1.4571 (316Ti) / stainless steel 1.4305 (303) optional: PVC grey / PVC grey PVDF / PVDF
Display housing	PA 6.6, polycarbonate	
Seals (media wetted)	$P_N \leq 25$ bar: FKM / $P_N > 25$ bar: NBR others on request	
Diaphragm	ceramics Al_2O_3 96 %	
Media wetted parts	pressure port, seals, diaphragm	

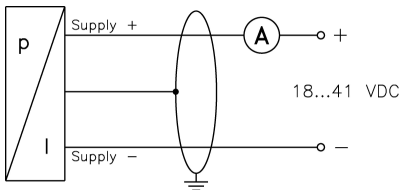
Miscellaneous		
Current consumption (without contacts)	signal output current:	max. 25 mA
	signal output voltage:	max. 18 mA
Weight	ca. 200 g	
Installation position	any	
Ingress protection	IP 65	

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)

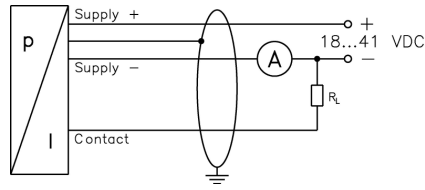
Wiring diagrams

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

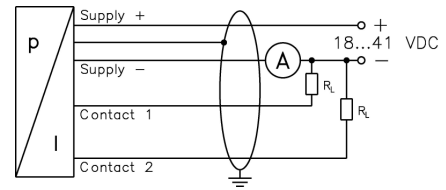
without contact



1 contact

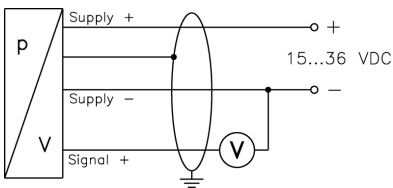


2 contacts

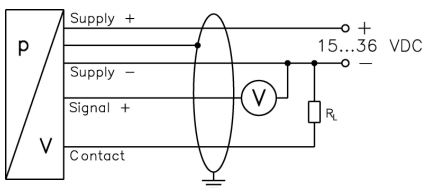


3-wire-system (voltage)

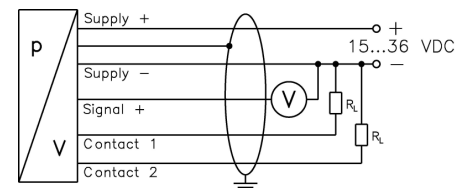
without contact



1 contact



2 contacts



¹⁰ possible for pressure ranges $P_N \leq 25$ bar

This data sheet contains product specification, properties are not guaranteed. Subject to change without notice.