



DS 200

Electronic Pressure Switch

Stainless Steel Sensor

accuracy according to IEC 60770:

standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

Contacts

1, 2 or 4 independent PNP contacts, freely configurable

Analogue output

2-wire: 4 ... 20 mA

3-wire: 4 ... 20 mA / 0 ... 10 V

others on request

Special characteristics

- indication of measured values on a 4-digit LED display
- rotatable and configurable display module

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases
- pressure sensor welded
- customer specific versions

The electronic pressure switch DS 200 is the successful combination of

- intelligent pressure switch
- digital display

and has been specially designed for numerous applications in various industrial sectors.

As standard the DS 200 offers a PNP contact and a rotatable display module with 4-digit LED display. Optional versions like e.g. an intrinsically safe version, max. four contacts and an analogue output complete the profile.

Preferred areas of use are



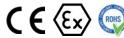
Plant and machine engineering



Heating and air conditioning



Environmental engineering (water - sewage - recycling)



Tel.: +49 (0) 92 35 / 98 11- 0

Fax: +49 (0) 92 35 / 98 11- 11







Input pressure range

Electronic Pressure Switch

Nominal pressure gauge ¹ [bar]	-10	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6				
Nominal pressure abs. [bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6				
Level gauge ¹ [mH ₂ O]	-	1	1.6	2.5	4	6	10	16	25	40	60				
Overpressure [bar]	5	0.5	1	1	2	5	5	10	10	20	40				
Burst pressure ≥ [bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50				
Nominal pressure	10	16	25	40) 6	0	100	160	250	400	600				
gauge 1 / absolute [bar]															
Level gauge ¹ [mH ₂ O]	100	160	250	400		00	-	-	-	-	-				
Overpressure [bar]	40	80	80	10				600	1000	1000	1000				
Burst pressure ≥ [bar]	50	120	120	210	10			1000	1250	1250	1250				
Vacuum resistance 1 from 60 bar: measurement starts with			a vacuur	n resistar	nce; p _N <	1 bar: or	1 reques	<u> </u>							
nom oo bar. measurement starts with	ambiem pres	Suie													
Contact ²															
Standard	1 PNP co	ntact													
Options	2 independent PNP contacts														
•	4 indepen	dent PN	contact					4 20 m	A/3-wire;						
					10 V/3-wir										
Max. switching current	4 20 m		d 3-wire:							$= V_S - 2V$					
Appurpage of contacts 3	0 10 V		0.4 h ===					rcuit resist							
Accuracy of contacts ³	standard: option:		0.4 bar: 0.4 bar:			p _N ≥	≤ U.4 bar	: ≤ ± 0.35	% FSU						
Repeatability	≤ ± 0.1 %		∪. ¬ ⊔di.	= ± ∪.∠3	70 1 3U										
Switching frequency	max. 10 F														
Switching cycles	> 100 x 1														
Delay time	0 100 x														
² max. 1 contact for 2-wire current signa			s well as 2	wire curre	nt signal w	ith IS-pro	tection								
no contact possible with 3-wire in com				wire carre	in signar vi	iiii io pio	nconon								
Analogue output (optionally) / Si	vlaaı														
2-wire current signal	4 20 m/	A / Vc = 1	3 36 V	'nc n	ermissibl	e load: F	R _{mov} = [(\	/c - Vc min)	/ 0.02 A] <u>0</u>	2					
	response	-		DC P		o .ouu	illax [(·	3 •311111)	, 0.02 / 1/2						
2-wire current signal with	4 20 m/			_{DC} p	ermissibl	e load: F	$R_{\text{max}} = [(V_{\text{max}})]$	$V_{\rm S} - V_{\rm S min}$	/ 0.02 A] <u>G</u>	Ω					
IS-protection	response	time: < 1	0 msec												
3-wire current signal	4 20 m				table (turr	n-down c	of span 1	:5) 4							
	permissib								•	e time: < 3					
3-wire voltage signal	0 10 V		5 36 V _I	oc p	ermissibl	e load: F	$R_{\min} = 10$	kΩ	respons	e time: < 3	3 msec				
without analogue output	V _S = 15		41 4	0.50/.5	.00			05.0/50							
Accuracy ³	standard: option:		4 bar: ≤ ± 4 bar: ≤ ±			$p_N \ge 0.4 \text{ k}$	oar: ≤ ± ().35 %FS()						
³ accuracy according to IEC 60770 – lin						oility)									
⁴ with turn-down of span the analogue s															
Thermal effects (offset and span)														
Nominal pressure p _N [bar]		-1	0			< 0.40	1			≥ 0.40					
Tolerance band [% FSO]	≤ ± 0.75				≤ ± 1			≤ ± 0.75							
in compensated range [°C]		-20	85			0 70	-2	20 85							
Permissible temperatures															
Medium	-40 125	5 °C													
Electronics / environment	-40 85	5 °C													
Storage	-40 100) °C													
Electrical protection															
Short-circuit protection	permanen	nt													
Reverse polarity protection	no damag		so no fun	ction											
Electromagnetic compatibility	emission				EN 61326	3									
Mechanical stability															
Vibration	10 g RMS	6 (25 2	000 Hz)	а	ccording	to DIN F	N 60068	3-2-6							
Shock	500 g / 1 i		 ,		ccording										
Materials	,														
Pressure port	stainless	steel 1 4	104 (316	1)											
Housing	stainless														
1 TO GOTTING				<u>-, </u>											
Display housing	PA 66 no														
Display housing Seals (media wetted)	PA 6.6, po		iato	^	ntion: wa	Ided ver	sion ⁵		others o	n request					
Seals (media wetted)	standard:	FKM			ption: we	lded vers	sion ⁵		others o	n request					
	 	FKM steel 1.4	135 (316	L)	ption: we	lded vers	sion ⁵		others o	n request					

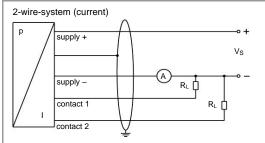
Fundacion nucleotica (culufo	. 4 . 20 4 / 2 ins)
Explosion protection (only fo	·
Approval AX14-DS 200	IBEXU 06 ATEX 1050 X
	zone 1: II 2G Ex ia IIC T4 Gb
Safety technical maximum values	$U_i = 28 \text{ V}, \ I_i = 93 \text{ mA}, \ P_i = 660 \text{ mW}, \ C \approx 0 \text{ nF}, \ L_i \approx 0 \mu\text{H}$
Max. switching current ⁶	70 mA
Permissible temperatures for environment	-25 70 °C
Connecting cables	cable capacitance: signal line/shield also signal line/signal line: 100 pF/m
(by factory)	cable inductance: signal line/shield also signal line/signal line: 1 µH/m
⁶ the real switching current in the ap	plication depends on the power supply unit
Miscellaneous	
Display	4-digit, red 7-segment-LED display
	digit height 7 mm
	range of indication -1999 +9999
	accuracy 0.1 % ± 1 digit
	digital damping 0.3 30 sec (programmable);
	measured value update 0.0 10 sec (programmable)
Current consumption	2-wire signal output current: max. 25 mA
(without contacts)	3-wire signal output current: approx. 45 mA + signal current
	3-wire signal output voltage: approx. 45 mA
Ingress protection	IP 65
Installation position	any ⁷
Weight	min. 160 g (depending on mechanical connection)
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ⁸
•	

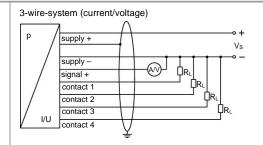
Pressure switches are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviation in the zero point for pressure ranges p_N ≤ 1 bar.
 This directive is only valid for devices with maximum permissible overpressure > 200 bar

2014/34/EU

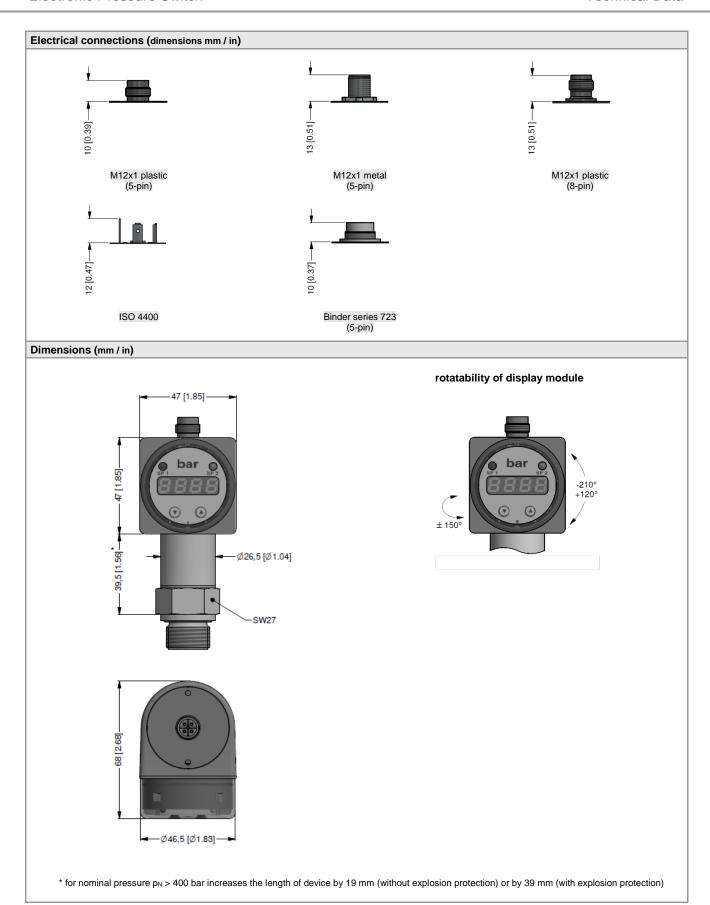
Wiring diagrams

ATEX Directive





Pin configuration					
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)
	3 2 2	3 4	5 6 7 8 1		3 4 5
Supply +	1	1	1	1	1
Supply –	3	3	3	2	3
Signal + (only 3-wire)	2	2	2	3	2
Contact 1	4	4	4	3	4
Contact 2	5	5	5	-	5
Contact 3	-	-	6	-	-
Contact 4	-	-	7	-	-
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact 😩	plug housing/ pressure port



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Mechanical connection (dimensions mm / in) SW27 SW27 SW27 20 [0.79] 23 [0.91] 17 [0.67]— 1/2" NPT 14 [0.55]-3 [0.12] G1/2" DIN 3852 G1/2" EN 837 1/2" NPT SW27 SW27 SW27 14 [0.55] 12 [0.47] G1/4' 1/4" NPT 15 [0.59] 2 [0.08] G1/4" 14 [0.55]-G1/4" DIN 3852 G1/4" EN 837 1/4" NPT SW27 X(2:1) 17 [0.67] -19[0.75]14 [0.55] Ø13,2 [Ø0.52] 0,9 [0.04] 16 [0.63] Ø40 [Ø1.57]-G3/4" flush DIN 3852 (0.1 bar $\leq p_N \leq 40$ bar) G1/2" flush DIN 3852 (0.1 bar $\leq p_N \leq 40$ bar) length of device: 87.5 mm (without plug) length of device: 103 mm (without plug) netric threads and other versions on request



					. –		DS					_			_			
DS 200	Ш	-		-L_	I-L	J-L	- <u>L</u>		J-L	Ш	Ш	-L	-L	L				
ressure gauge in bar 1	7 8 0																	
gauge in mH ₂ O ¹ absolute in bar ²	7 8 H 7 8 1									П								
nput [mH ₂ O] [bar] 1.0 0.10 ²		1 0	0 0															
1.6 0.16 2		1 6	0 0															
2.5 0.25 ² 4.0 0.40		2 5	0 0															
6.0 0.60		6 0	0 0															
10 1.0 16 1.6			0 1															
25 2.5 40 4.0		2 5	0 1															
60 6.0		6 0	0 1															
100 10 160 16		1 0	0 2															
250 25		2 5	0 2															
400 40 600 60		4 0	0 2															
100		1 0	0 3															
160 250		2 5	0 3															
400 600		4 0 6 0	0 3															
-1 0		X 1	0 2															
customer nalogue output		9 9	9 9								_							consult
without				0														
4 20 mA / 2-wire 0 10 V / 3-wire				1														
4 20 mA / 3-wire, adjustable				7J E														
intrinsic safety 4 20 mA / 2-wire ³ customer				9														consult
Contact 1 contact 3,4					1													
2 contacts 3,4					2													
4 contacts ⁵	_	_	-	-	4		_			-	-	-	_		-	_	_	consult
tandard for p _N > 0.4 bar: 0.35 % FSO						3												
tandard for $p_N \le 0.4$ bar: 0.50 % FSO ption for $p_N \ge 0.4$ bar: 0.25 % FSO						5 2												
customer					_	9					_	_						consult
lectrical connection male plug M12x1 (5-pin) /								0 4			-							
plastic version male plug M12x1 (8-pin) / ⁵							N	0 1										
plastic version							М	5 0										
male plug M12x1 (5-pin) / metal version							N	1 1										
male and female plug ISO 4400 ⁴								0 0										
male plug Binder series 723 (5-pin) customer							2 9	0 4 9 9										consult
lechanical connection G1/2" DIN 3852			-	-	-	-	-	-		1 0	0	-		H				
G1/2" EN 837									2	2 0	0							
G1/4" DIN 3852 G1/4" EN 837										3 0 4 0								
G1/2" DIN 3852 with ⁶ flush sensor									F	0	0							
G3/4" DIN 3852 with 6									ŀ	(0	0							
flush sensor 1/2" NPT										1 0								
1/4" NPT									١	۱ 4	0							
customer									į	9 9	9							consult
FKM without (welded version) 7												1 2						
customer												9						consult
pecial version standard														0				
customer														9				consult
om 60 bar: measurement starts with ambient pressure																		
bsolute pressure possible from 0.4 bar ith IS version max. 1 contact is possible																		
ith connector ISO 4400 and output 2-wire version only r contacts and M12x1, 8-pin only possible in combination																		
zonaco una mizzi, o-più oniy possible ili combination		ressure ab			10	. , U-WII E	511 160	uool										

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