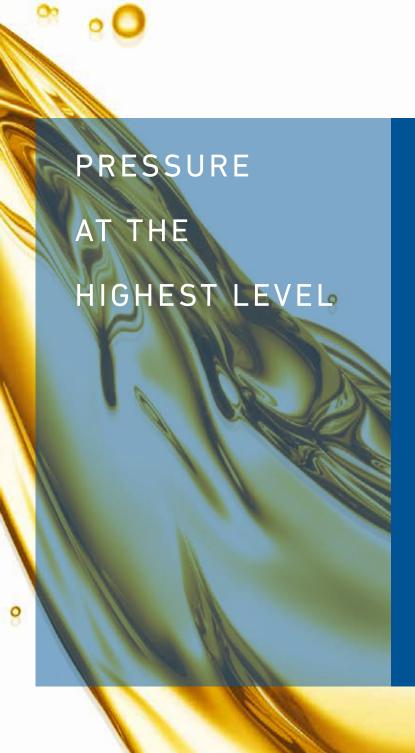
PRODUCT CATALOGUE PRESSURE SWITCH







"Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else."

This is our philosophy. That's why BDISENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.

This document contains product specifications, properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without potice.



With 260 employees at 4 locations in Germany, the Czech Republic, Russia and China BD|SENSORS has solutions from 0.1 mbar to 8000 bar:

>	pressure sensors, pressure transducers
	pressure transmitters

- > electronic pressure switches
- > pressure measuring devices with display and switching outputs
- > hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. To-day the range extends to more than 100 standard products, from economical OEM devices to high-end products with HART® communication or field bus interface.

In addition we have developed hundreds of customer-specific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

PRESSURE SWITCH WITH DISPLAY	5-69
INDUSTRY	5-66
OEM	67-69

INDEX

PRESSURE SWITCH
WITHOUT DISPLAY 70-79

4 ADVANTAGES 80

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

flexibly, quickly and cost-efficiently.

	disp hous				c	ontacts	;			pressi	ure port			
	stainless stell ball housing	plastic	accuracy (FSO)¹ª	digital communication	1/2	1/2/4	analog signal mA / V	nominal pressure [bar]	inch and NPT thread	inch thread flush	dairy pipe	clamp	certificates	page
with display														
DS 400	•		0,35 %		•		•	0 100 up to 0 600	•				EX	5-9
DS 401	•		0,5 %		•		•	0 0,4 up to 0 600	•				EX	10-14
DS 300			0,35 %				•	0 100 up to 0 600						15-19
DS 200		•	0,35 %			•		0 0,1 up to 0 600	•				EX	20-24
DS 201		•	0,5 %			•		0 0,4 up to 0 600					EX	25-29
DS 202		•	0,5 %			•	•	0 6 up to 0 600	•				EX	30-34
DS 210		٠	0,35 %			•	•	0 0,01 up to 0 1	•				EX	35-39
DS 214		٠	0,5 %			•	•	0 600 up to 0 2200	•				EX	40-43
DS 233			0,35 %		•		•	0 6 up to 0 1000						44-48
DS 400P			0,35 %				•	0 0,1 up to 0 40		•		•	EX, 3A	49-53
DS 200P		•	0,35 %			•	•	0 60 up to 0 400		•	•	•	EX, 3A	54-58
DS 201P		•	0,5 %			•		0 0,1 up to 0 40		•			EX	59-63
DS 217			0,5 %				•	0 6 up to 0 600	•					64-66
DS 230			1,5 %					0 2 up to 0 400						67-69
without display														
IS 4			0,5 %		•			0 1 up to 0 10						70-73
DS 4		•	2 %		•			0 1 up to 0 10	•					74-76
DS 6			1 %		•			0 2 up to 0 400	•					77-79

 $^{^{\}rm 1}\,$ according to IEC 60770



Intelligent Electronic Pressure Switch Stainless Steel

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 or 2 independent PNP contacts, freely configurable

Analogue output

2-wire: 4 ... 20 mA 3-wire: 4 ... 20 mA

3-wire: 0 ... 10 V (on request)

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 and dust

- welded pressure sensor
- customer specific versions

The electronic pressure switch DS 400 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 400 offers a PNP contact and a display module, which is mounted rotable in the globe housing. Additional optional versions like e.g. an intrinsically safe version, a second contact 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)









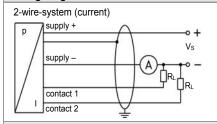
	[bar]	-1 0	0.10	0.16	0.25	0.40	0.60	1	1.0	3 2.5	4	6
Nominal pressure gauge Nominal pressure abs.	[bar]	-1 0	-	-	-	0.40	0.60	1	1.0	_	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10		20	40
Burst pressure	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50
Nominal pressure												
gauge / abs.	[bar]	10	16	25	40	60)	100	160	250	400	600
Overpressure	[bar]	40	80	80	105	21	0	210	600	1000	1000	1000
Burst pressure	[bar]	50	120	120	210	_		420	1000	1250	1250	1250
Vacuum resistance		P _N ≥ 1 ba	r: unlimite	d vacuum	resistanc	е		Î	^o _N < 1 ba	on reques	t	
0												
Contact 1			4 DND		4	0 :		NID t	4-			
Number, type		standard:				2 indepe				-1.11	\	
Max. switching current		4 20 m		a 3-wire: on request						nt; V _{switch} =	V _S – 2V	
Accuracy of contacts ²		≤ ± 0.25 %		on request	.). Contac	traung 12	.5 IIIA, 8	iioit-ciic	uit iesiste	111		
Repeatability		$\leq \pm 0.1\%$										
Switching frequency		2-wire: m		. /	3-wire:	50 Hz						
Switching cycles		> 100 x 1		. ,	J-WIIC.	30 112						
Delay time		0 100 x										
¹ with IS-protection max. 1 cor	ntact nossi											
Analogue output (option	•											
2-wire current signal	,, , Ou		A / Vs =	13 36 V	DC:							
=o odironi digilal		1		$R_{\text{max}} = [(V_S)]$		0.02 Al Ω	2		re	sponse time	e: < 10 mse	ec
2-wire current signal with				15 28 V								
IS-protection		permissib	le load: F	$R_{\text{max}} = [(V_S)]$	- V _{S min}) /	0.02 A] Ω	2			sponse time	e: < 10 mse	ес
3-wire current signal				24 V _{DC} ± 1		stable (tur	n-down	of span				
		permissib	le load: F	$R_{\text{max}} = 500$	Ω				re	sponse time	e: < 30 mse	ec
3-wire voltage signal				4 V _{DC} ± 10		able (turn-	-down o	t span 1:				
(on request)		· ·		$R_{min} = 10 \text{ kg}$. 2				re	sponse time	:. < 30 mse	÷C
Without analogue output		V _S = 15		al pressure	< 0.4 ha	r: < ± 0	.5 % FS	0				
Accuracy ²		Standard.		al pressure			.35 % F					
		option:		al pressure			.25 % F					
man turn down or spain the ar	nalogue si	gnal is adjus	sted auton	natically to t	he new m	easuring ra	ange					
Thermal effects (Offset a	nd Span				the new m	easuring ra		<u> </u>			> 0.40	
Thermal effects (Offset a Nominal pressure P _N	nd Span [bar]		-1	0	the new m	easuring r	< 0.40)			≥ 0.40 < + 0.75	
Thermal effects (Offset a Nominal pressure P _N Tolerance band	nd Span [bar] [% FSO]		-1 ≤ ± 0.	0 75	the new m	easuring r	< 0.40 ≤ ± 1				≤ ± 0.75	
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range	nd Span [bar] [% FSO] [°C]		-1	0 75	the new m	easuring ra	< 0.40					
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature	nd Span [bar] [% FSO] [°C])	-1 ≤ ± 0.° -20	0 75 85			< 0.40 ≤ ± 1 0 70)	95 °C	-	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature Permissible temperatures	nd Span [bar] [% FSO] [°C]		-1 ≤ ± 0.° -20	0 75 85		easuring ra	< 0.40 ≤ ± 1 0 70)	85 °C	-	≤ ± 0.75	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection	nd Span [bar] [% FSO] [°C]	medium:	-1 ≤ ± 0. -20	0 75 85			< 0.40 ≤ ± 1 0 70)	85 °C	-	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection	nd Span [bar] [% FSO] [°C]	medium:	-1 ≤ ± 0.` -20 -40 125	0 75 85 5 °C	electron		< 0.40 ≤ ± 1 0 70)	85 °C	-	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection	nd Span [bar] [% FSO] [°C] s	medium:	-1 ≤ ± 0. -20 -40 125 nt ge, but als	0 75 85 5 °C	electron	ics / envir	< 0.40 ≤ ± 1 0 70)	85 °C	-	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit	nd Span [bar] [% FSO] [°C] s	medium:	-1 ≤ ± 0. -20 -40 125 nt ge, but als	0 75 85 5 °C	electron	ics / envir	< 0.40 ≤ ± 1 0 70)	85 °C	-	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability	nd Span [bar] [% FSO] [°C] s	medium: permaner no damag emission	-1 ≤ ± 0.: -20 -40 125 nt ge, but als	0 75 85 5 °C so no funct unity accor	electron	ics / envir	< 0.40 ≤ ± 1 0 70	: -40		stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration	nd Span [bar] [% FSO] [°C] s	permaner no damagemission	-1 ≤ ± 0 -20 -40 125 ant ge, but als and immu	0 75 85 5 °C so no funct unity accor	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock	nd Span [bar] [% FSO] [°C] s	medium: permaner no damag emission	-1 ≤ ± 0 -20 -40 125 ant ge, but als and immu	0 75 85 5 °C so no funct unity accor	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D		stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials	nd Span [bar] [% FSO] [°C] s	permaner no damag emission 10 g RMS 500 g / 1	-1 ≤ ± 0. -20 -40 125 and immu s (25 20 msec	0 75 85 5 °C so no funct unity accor	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port	nd Span [bar] [% FSO] [°C] s	permaner no damagemission 10 g RMS 500 g / 1 stainless	-1 ≤ ± 0. -20 -40 125 and immu s (25 20 msec	0 75 85 5°C so no funct unity accor	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing	nd Span [bar] [% FSO] [°C] s	permaner no damag emission 10 g RMS 500 g / 1 stainless stainless	-1 ≤ ± 0. -20 -40 125 and immu s (25 20 msec	0 75 85 5 °C so no funct unity accor 000 Hz) -04 (316L)	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass	nd Span [bar] [% FSO] [°C] s	permaner no damag emission 10 g RMS 500 g / 1 stainless stainless laminated	-1 ≤ ± 020 -40 125 and immu (25 20 msec steel 1.44 safety gl	0 75 85 5 °C so no funct unity accor 000 Hz) -04 (316L)	electron	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing	nd Span [bar] [% FSO] [°C] s	permaner no damagemission 10 g RMS 500 g / 1 stainless stainless laminated standard:	-1 ≤ ± 020 40 125 and immu (25 20 msec steel 1.44 safety gl FKM	0 75 85 5°C so no funct unity accor 000 Hz) 004 (316L) 004 (316L) ass	electron ion ding to El	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 600	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted)	nd Span [bar] [% FSO] [°C] s	permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option:	-1 ≤ ± 020 -40 125 and immu (25 20 msec steel 1.44 steel 1.44 steel 1.44 steel 1.44 steel ygl FKM welded	0 75 85 60 no funct unity accor 000 Hz) 604 (316L) 604 (316L) 605 605 607 608 609 609 609 609 609 609 609 609 609 609	electron ion ding to El	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 60	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm	nd Span [bar] [% FSO] [°C] s	permaner no damagemission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless	-1 ≤±020 40 125 and immu (25 20 msec steel 1.44 safety gl FKM welded steel 1.44 steel 1.44	0 75 85 5°C so no funct unity accor 000 Hz) 04 (316L) 04 (316L) ass d version ⁴ 35 (316 L)	electron ion ding to El	ics / envir	< 0.40 ≤ ± 1 0 70 onment	: -40 ling to D	IN EN 600	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts	Ind Span [bar] [% FSO] [°C] s	permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure	-1 ≤ ± 020 -40 125 and immu (25 20 msec steel 1.44 safety gl FKM welded steel 1.44 port, seal	0 75 85 5°C 50 no funct unity accor 000 Hz) 004 (316L) ass d version 4 35 (316 L) s, diaphrag	electron ion ding to El	ics / envir	< 0.40 ≤±1 0 70 onment	i -40	IN EN 600	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts 4 welded version only for press	Ind Span [bar] [% FSO] [°C] s	permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to	-1 ≤ ± 020 -40 125 and immu (25 20 msec steel 1.44 safety gl FKM welded steel 1.44 port, seal p EN 837;	0 75 85 5°C 50 no funct unity accor 000 Hz) 004 (316L) ass d version 4 35 (316 L) s, diaphrag	electron ion ding to El	ics / envir	< 0.40 ≤±1 0 70 onment	i -40	IN EN 600	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts * welded version only for press Explosion protection (on	Ind Span [bar] [% FSO] [°C] s	permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to 20 mA /	-1 ≤ ± 020 -40 125 and immu (25 20 msec steel 1.44 safety gl FKM welder steel 1.44 port, seal p EN 837; 2-wire)	0 0 75 85 85 6 °C 60 no funct unity accor 1000 Hz) 1004 (316L) 1004 (316L) 1005 (316 L) 1005 (31	electron ion ding to El	ics / envir	< 0.40 ≤±1 0 70 onment	i -40	IN EN 600	stora 9068-2-6 9068-2-27	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts * welded version only for press Explosion protection (on	Ind Span [bar] [% FSO] [°C] s	medium: permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to 20 mA /	-1 < ± 0. -20 -40 125 and imm. -4 (25 20 msec steel 1.44 safety gl FKM weldes steel 1.44 port, seal	0 0 75 85 85 6 °C 60 no funct unity accor 1000 Hz) 1004 (316L) 1004 (316L) 1005 (316 L) 1005 (31	electron ion ding to Ef	nics / envir	< 0.40 ≤ ± 1 0 70 conment	ing to D	IN EN 600	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure PN Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts * welded version only for press Explosion protection (on	Ind Span [bar] [% FSO] [°C] s	medium: permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to 20 mA / IBExU 06 zone 0:	-1 < ± 0. -20 125 -40 125 -41 14 15 16 16 17 18	0 0 75 85 85 6 °C 60 no funct unity accor 000 Hz) 004 (316L) ass d version 4 35 (316 L) s, diaphragpossible for 150 X	electron ion ding to Et on reque gm r nominal j	nics / envir	< 0.40 ≤ ± 1 0 70 conment	ing to D	IN EN 600	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts 4 welded version only for press Explosion protection (on Approval AX14-DS 400	y sure ports Ibar] [bar] [condition of the condition	medium: permaner no damagemission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to 20 mA / IBEXU 06 zone 0: zone 20:	-1 ≤±020 140 125 and immulating but also asked 1.44 safety gl FKM welded steel 1.44 port, seal ab EN 837; 2-wire) 2-wire) ATEX 10 II 1G EX III 1D EX	0 75 85 6 °C 60 no funct unity accor 000 Hz) 04 (316L) 04 (316L) ass d version 4 35 (316 L) s, diaphrag possible for 050 X ia IIC T4 (electron ion ding to Et on reque gm r nominal p	st pressure re ector) / II	< 0.40 ≤±1 0 70 conment accord accord	ing to D	IN EN 600	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts * welded version only for press Explosion protection (on Approval AX14-DS 400	y sure ports Ibar] [bar] [condition of the condition	medium: permaner no damagemission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to 20 mA / IBEXU 06 zone 0: zone 20:	-1 ≤±020 140 125 and immulating but also asked 1.44 safety gl FKM welded steel 1.44 port, seal ab EN 837; 2-wire) 2-wire) ATEX 10 II 1G EX III 1D EX	0 75 85 6 °C 60 no funct unity accor 000 Hz) 604 (316L) 604 (316L) 635 (316 L) 635 (316 L) 635 (316 L) 636 X 64 ia IIC T4 (66 ia IIIC T13	electron ion ding to Et on reque gm r nominal p	st pressure re ector) / II	< 0.40 ≤ ± 1 0 70 conment accord accord	ing to D	IN EN 600	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts	y sure ports les	medium: permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: stainless pressure according to 20 mA / IBEXU 06 zone 0: zone 20: Ui = 28 V 70 mA	-1 ± 020 -20 -40 125 Int ye, but also and immutations f (25 20 msec steel 1.44 safety gl FKM weldec steel 1.44 port, seal p EN 837; 2-wire) ATEX 10 II 1G EX II 1D EX I _i = 93 m ATEM 10.	0 0 75 85 5 °C so no funct unity accor 000 Hz) 004 (316L) ass d version 4 35 (316 L) s, diaphragpossible for 150 X ia IIC T4 (ia IIIC T13 A, P _i = 660	electron ion ding to Ef on reque gm r nominal p Ga (connets °C Da 0 mW, Ci	st oressure ra ector) / II ≈ 0 pF, Li	< 0.40 ≤ ± 1 0 70 conment accord accord	ing to D	IN EN 600	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts 4 welded version only for press Explosion protection (on Approval AX14-DS 400 Safety techn. maximum valu Max. switching current 5 Permissible temperatures fo environment	[bar] [bar] [% FSO] [°C] s	medium: permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: option: stainless pressure according to zone 0: zone 20: Ui = 28 V, 70 mA -20 60	-1 ≤±020 140 125 and immu (25 20 msec steel 1.44 ste	0 75 85 6 °C 60 no funct unity accor 000 Hz) 04 (316L) 04 (316L) ass d version 4 35 (316 L) s, diaphrac possible for 050 X ia IIIC T4 (ia IIIC T13 A, P _i = 660	on reque	st pressure rate ector) / II ≈ 0 pF, Li bar	< 0.40 ≤±1 0 70 conment accord accord accord	i -40 ling to D ling to D	IN EN 600 IN EN 600 Others on Ga (cable	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C
Thermal effects (Offset a Nominal pressure P _N Tolerance band in compensated range Permissible temperature: Permissible temperatures Electrical protection Short-circuit protection Electromagnetic compatibilit Mechanical stability Vibration Shock Materials Pressure port Housing Viewing glass Seals (media wetted) Diaphragm Media wetted parts 4 welded version only for press Explosion protection (on Approval AX14-DS 400 Safety techn. maximum valu Max. switching current 5 Permissible temperatures fo	[bar] [bar] [% FSO] [°C] s	medium: permaner no damage emission 10 g RMS 500 g / 1 stainless stainless laminated standard: stainless pressure according to 20 mA / IBEXU 06 zone 0: zone 20: Ui = 28 V 70 mA	-1 ≤±020 40 125 and immu (25 20 msec steel 1.44 safety gl FKM welded steel 1.44 sport, seal p EN 837; 2-wire) ATEX 10 II 1G Ex II 1D Ex II = 93 m °C with p acitance:	0 0 75 85 5°C 50 no funct unity according to 2000 Hz) 200	electron ion ding to El on reque gm r nominal µ 6a (conne 15 °C Da 0 mW, Ci up to 1.1 line/shield	st oressure ra ector) / II ≈ 0 pF, Li	< 0.40 ≤±1 0 70 conment accord accord accord	ling to D ling to D a ≤ 40 bar a IIB T4	IN EN 600 IN EN 600 Dothers on Ga (cable	stora 068-2-6 068-2-27 request	≤ ± 0.75 20 85	100 °C

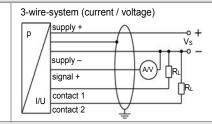
Miscellaneous	
Display	4-digit, 7-segment-LED display, visible range 37.2 x 11 mm; digit height 10 mm, range of indication -1999 +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 30 sec (programmable); measured value update 0.0 10 sec (programmable)
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 30 mA + signal current 3-wire signal output voltage: approx. 30 mA
Ingress protection	IP 67
Installation position	any 6
Weight	approx. 400 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) 7
ATEX Directive	2014/34/EU

⁶ 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 $P_N \le 1$ bar.

⁷ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

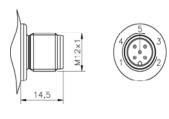




Pin	configuration	
PIN	configuration	

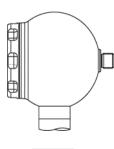
Electrical connection	M12x1 metal (5-pin)
Supply +	1
Supply –	3
Signal + (only 3-wire)	2
Contact 1	4
Contact 2	5
Shield	plug housing / pressure port

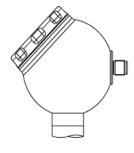
Electrical connection (dimensions in mm)



M12x1 (5-pin)





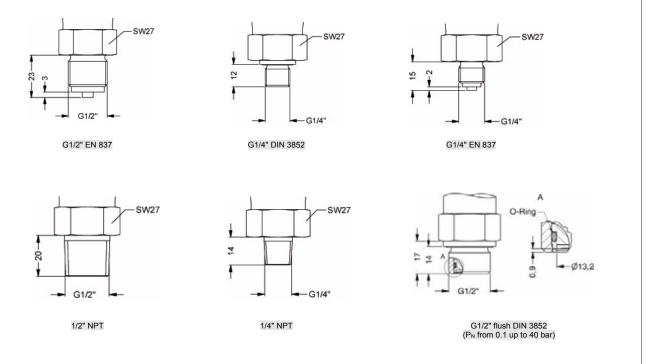


side display 45° display (on request)

⁸ all designs in horizontal rotatable housing as standard

Standard Stand

Options



	Ordering code DS 400	
DS 400	Ⅲ-Ⅲ-□-□-□-□]-[]]
Pressure		
gauge ¹ absolute ²	7 A 0 7 A 1	
Input [bar] 0.10 ² 0.16 ²	1 0 0 0	
0.25 2	1 6 0 0 2 5 0 0	
0.40 0.60	4 0 0 0 0 6 0 0 0	
1.0 1.6	1 0 0 1 1 6 0 1	
2.5	2 5 0 1	
4.0 6.0	4 0 0 1 6 0 0 1	
10 16	1 0 0 2 1 6 0 2	
25	2 5 0 2	
40 60	4 0 0 2 6 0 0 2	
100 160	1 0 0 3 1 6 0 3	
250 400	2 5 0 3 4 0 0 3	
600	6 0 0 3	
-1 0 customer	X 1 0 2 9 9 9 9	consult
Design stainless steel globe housing		
(side display) stainless steel globe housing	K H K 4	consult
(45° display) Analogue output		
without 4 20 mA / 2-wire	0 1	
0 10 V / 3-wire, adjustable 4 20 mA / 3-wire, adjustable	3J 7J	consult
intrinsic safety 4 20 mA / 2-wire 3	E	
Contact	9	consult
1 contact 2 contacts ³	1 2	
Accuracy		
standard for P _N < 0.4 bar 0.5 %	3 5	
option 1 for P _N ≥ 0.4 bar 0.25 % customer	2 9	consult
Electrical connection male plug M12x1 (5-pin) /		
metal version customer	N 1 9 9	
Mechanical connection	9 9 :	
G1/2" DIN 3852 G1/2" EN 837		1 0 0 2 0 0 3 0 0 4 0 0
G1/4" DIN 3852 G1/4" EN 837		3 0 0
G1/2" DIN 3852 with		F 0 0
flush sensor ⁴ 1/2" NPT		
1/4" NPT customer		N 0 0 N 4 0 9 9 9 consult
Seals FKM		1
without (welded version) 5		2 consult
Special version customer		
standard customer		0 0 0 9 9 9 consult
		, , ,

¹ from 60 bar: measurement starts with ambient pressure

² absolute pressure possible from 0.4 bar

³ with Ex version max. 1 contact is possible

 $^{^4}$ only possible for nominal pressure ranges $P_N \le 40$ bar

 $^{^{5}}$ welded version only with pressure ports according to EN 837; possible for nominal pressure ranges $P_{N} \le 40$ bar



Intelligent Electronic Pressure Switch Stainless Steel

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 400 mbar up to 600 bar

Contacts

1 or 2 independent PNP contacts, freely configurable

Analogue output

2-wire: 4 ... 20 mA 3-wire: 4 ... 20 mA

3-wire: 0 ... 10 V (on request)

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 and dust

- pressure port PVDF
- customer specific versions

The electronic pressure switch DS 401 is the successful combination of

- intelligent pressure switch
- digital display

and has been specially designed for universal usage in industry applications; with flush diaphragm the DS 401 is suitable for the usage in viscous, pasty or highly contaminated media. The rotatable stainless steel globe housing is predestined for rough conditions and difficult installing conditions, caused by the high functionality and robustness. As standard the DS 401 offers a PNP contact and is optionally available with a second, independent contact. Additionally the DS 401 could be equipped with an analogue output.

Preferred areas of use are



Plant and machine engineering



Environmental engineering (water – sewage – recycling)



Water



Hydraulic oil



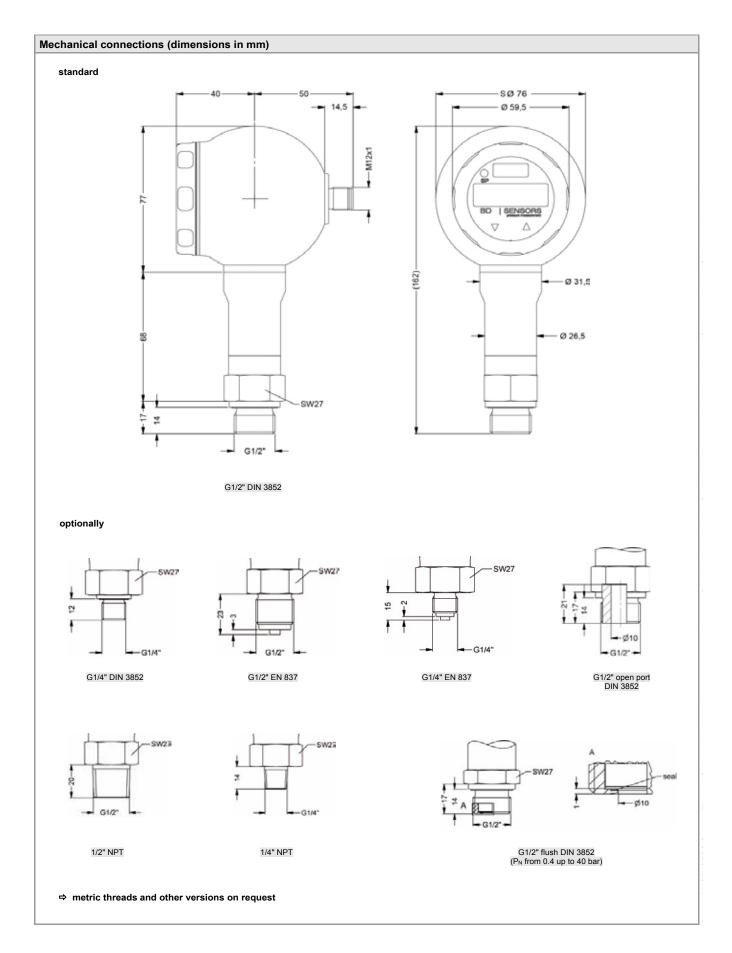




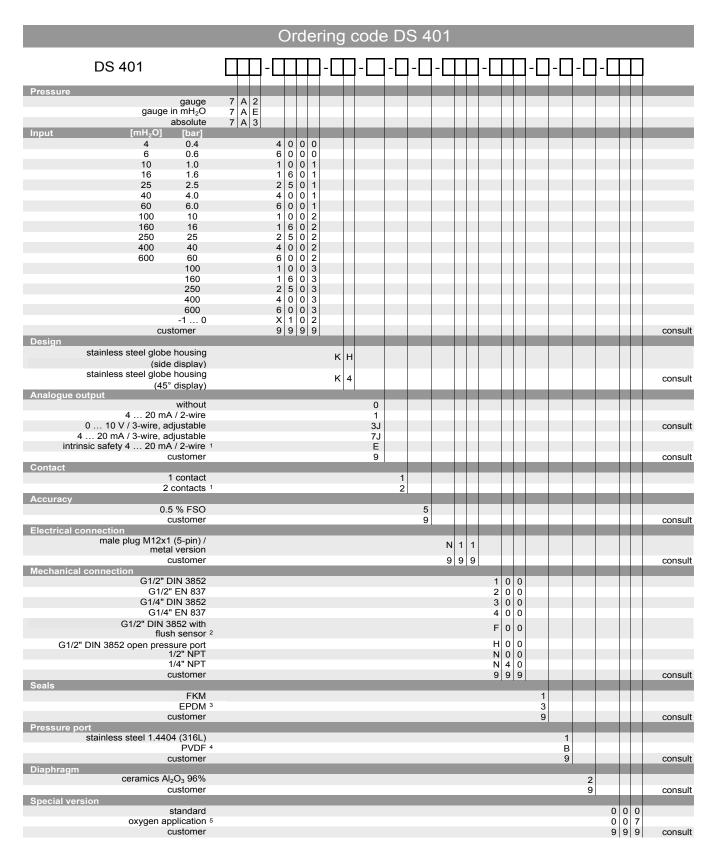


Input pressure ranges																	
Nominal pressure gauge [bar]	-10	0.4	0.6	1	1.6	2.5	4 6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs. [bar]	-	-	0.6	1	1.6	_	4 6	10	16	25	40	60	100	160	250	400	600
Level gauge [mH ₂ O]	-	4	6	10	16	-	0 60		160	250	400	600	-	-	-	-	-
Overpressure [bar]	4	1	2	2	4		0 10		40	40	100	100	200	400	400	600	800
Burst pressure ≥ [bar]	7	2	4	4	5	-	2 12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		$P_N \ge 1$ bar: unlimited vacuum resistance $P_N < 1$ bar: on request															
Contact ¹																	
Number, type		lard: 1 PNP contact															
Max. switching current	option:																
iviax. Switching current		20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; V _{Switch} = V _S - 2V 10 V / 3-wire (on request): contact rating 125 mA, short-circuit resistant															
Accuracy of contacts ²	≤ ± 0.5								,								
Repeatability	≤ ± 0.2	% FS	0														
Switching frequency	2-wire:	max.	10 Hz		/	3-wire:	50 Hz										
Switching cycles	> 100	∢10 ⁶															
Delay time	0 10	0 sec															
with Ex-protection max. 1 contact	possible																
Analogue output (optionally)	/ Supply	,															
2-wire current signal	4 20		V _S = 1	3 3	36 V _{DC}	;											
						V _{S min})/	0.02 A]	Ω				respo	onse tii	me: <	10 ms	ec	
2-wire current signal,	4 20																
Ex-protection						V _{S min}) /					2	respo	nse tir	ne: < '	10 ms	ec	
3-wire current signal	permis	20 mA / V_S = 24 V_{DC} ± 10 % adjustable (turn-down of span 1:5) 3 response time: < 30 msec															
3-wire voltage signal) 10 V / V _S = 24 V _{DC} ± 10 % adjustable (turn-down of span 1:5) ³															
(on request)	+-	permissible load: R _{min} = 10 kΩ response time: < 30 msec															
Without analogue output	-	V _S = 15 36 V _{DC}															
Accuracy ²	≤ ± 0.5			/	lina a a min	h. h	!	4 - h : l :	4\								
² accuracy according to IEC 60770 ³ with turn-down of span the analog																	
Thermal effects (Offset and S							W THOUSE	anng run	.gc								
Thermal error	≤ ± 0.2	% FS	O / 10	K													
in compensated range	-25	35 °C															
Permissible temperatures	mediur electro storage	nics / e	enviror	nment	t: -4	0 125 0 85 0 100	°C										
⁴ for pressure port of PVDF the min	imum per	missibl	e temp	eratur	e is -3	0 °C											
Electrical protection																	
Short-circuit protection	perma	nent															
Reverse polarity protection	no dan	nage, b	out als	o no f	unctio	n											
Electromagnetic compatibility	emissi	on and	l immu	nity a	ccordi	ng to EN	161326	i									
Mechanical stability	-																
Vibration	10 g R	MS (2	5 20	00 Hz	z) a	ccordin	g to DIN	I EN 60	068-2-0	3							
Shock	500 g /					ccordin											
Materials	, ,																
Pressure port / housing	standa	rd: 1.4	4404 (;	316L)													
						p to 60	bar): P	VDF									
Housing	1.4404	(316L	_)														
Display housing	stainle	ss stee	el 1.43	01 (30	04)												
Viewing glass	lamina	ted sat	fety gla	ass													
Seals	standa			· · ·	100 1	\							- 41				
Dianhragm	option:		PDM (I		IOU Da	1)							otn	ers on	reque	SI	
Diaphragm Media wetted parts	pressu				hraan	<u> </u>											
ivieula welleu parts	pressu	ie hou	, seals	, uia	nnayr	1											

Explosion protection (only for 4.	20 mA / 2-wire)								
Approval AX14-DS 401	IBExU06ATEX1050 X								
	zone 0: II 1G Ex ia IIC T4 Ga (connector) / II 1G Ex ia IIB T4 Ga (cable)								
	zone 20: II 1D Ex ia IIIC T135 °C Da								
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C \approx 0$ nF, $L_i \approx 0$ μH								
Max. switching current ⁵	70 mA								
Permissible temperatures for environment	-20 60 °C with p _{atm} 0.8 bar up to 1.1 bar								
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: 1 μH/m									
⁵ the real switching current in the applica	tion depends on the power supply unit								
Miscellaneous									
Display	4-digit, 7-segment-LED display, visible range 37.2 x 11 mm; digit height 10 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)								
Option oxygen application ⁶	for P _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C								
Current consumption	2-wire signal output current: max. 25 mA								
(without contacts)	3-wire signal output current: approx. 30 mA + signal current approx. 30 mA								
Ingress protection	IP 67								
Installation position	any								
Weight	approx. 400 g								
Operational life	100 million load cycles								
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ⁷								
ATEX-Richtlinie	2014/34/EU								
⁶ not possible with flush pressure ports									
•	vith maximum permissible overpressure > 200 bar								
Wiring diagrams									
2-wire-system (current) p supply + supply - contact 1 contact 2 Pin configuration Electrical connections Supply +	3-wire-system (current / voltage) p supply + vs supply - signal + contact 1 contact 2 M12x1 metal (5-pin)								
Supply –	3								
Signal + (only 3-wire) Contact 1	2 4								
Contact 1	5								
Shield	plug housing / pressure port								
Electrical connections (dimensio	ns in mm)								
14.5 M12x1 (5-pin)									
Design 8									
side display	45° display (on request)								
⁸ all designs in horizontal rotatable housi	ng as standard								



Ordering Code



¹ with Ex version max. 1 contact is possible

² G1/2" flush up to 25 bar and nominal pressure abs. on request

³ possible for nominal pressure ranges P_N ≤ 160 bar

⁴ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); Ex-protection not possible, (min. permissible temperature -30°C)

oxygen application with FKM-seal up to 25 bar possible



Electronic Pressure Switch

with IO-Link interface

Stainless Steel Sensor

accuracy according to IEC 60770: 0.35 % FSO

Nominal pressure

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

Digital output signal

IO-Link according to specification V 1.1

Smart sensor profile

Data transfer 38.4 kBaud

2 contacts

Analog output (optional)

4 ... 20 mA or 0 ... 10 V

Special characteristics

- indication of measured values on a 4-digit LED display
- rotatable and configurable display module
- parameter settings via IO-Link or menu (VDMA-conform)

Optional versions

- different mechanical connections
- customer specific versions

The electronic pressure switch DS 300 is equipped with an IO-Link interface as standard in order to exchange process data, diagnostic reports and status messages with a superordinate control level.

The parameters are set either also via the control level or via the VDMA-compliant menu system, which can be carried out at a local level using two keys.

The DS 300 is designed for the mechanical engineering and plant engineering sectors. A large number of inch threads, metric threads or NPT threads are available to users in order to ensure optimum integration in the application. In addition, unusual display positions can be compensated to the multiple rotatability of the display so that the user is able to read the vital information without any problems.

Preferred areas of use are



Plant and machine engineering

- machine tools
- pneumatic plants
- hydraulic plants











Input pressure range											
Nominal pressure gauge [bar	-1 0	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
Overpressure (static) [bar	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥ [bar		1.5	1.5	1.5	3	7.5	7.5	5 15	15	25	50
Nominal pressure gauge / abs.[b	ar 10	16	25	40	6	0	100	160	250	400	600
Overpressure (static) [bar		80	80	105	5 2	10	210	600	1000	1000	1000
Burst pressure ≥ [bar	50								1250	1250	1800
Vacuum resistance	P _N ≥ 1 b	ar: fully va	acuum res	sistant							
	$P_N < 1 b$	ar: on req	uest								
Contact											
Voltage supply	V _S = 18	30 V _{DC}									
	Output	signal 1			Outp	ut sign	al 2				
Standard	IO-Link	/ SIO (PN	P or NPN) +	1 PNI	P conta	ct				
Optional	IO-Link	/ SIO (PN	P or NPN) +	1 NPI	N conta	ct (on re	quest)			
Switching current	200 mA										
Accuracy of switching points 1	≤ ± 0.35	% FSO									
Repeatability	≤ ± 0.1 °	% FSO									
Switching frequency	max. 20	0 Hz									
Switching cycles	> 100 x	10 ⁶									
Delay time	0.0 5	0.0 sec									
Analog output (optional)											
3 1 1 1 1 1 1 1 1 1 1 1	Output	signal 1			Outp	ut sign	al 2				
Voltage (3-wire)		/ SIO (PN	P or NPN) +	0 1			ne	ermissible I	nad: R	> 10 kO
Current (3-wire)		,						•			
		IO-Link / SIO (PNP or NPN) + 4 20 mA permissible load: $R_{max} \le 330 \Omega$ nominal pressure ≥ 0.4 bar: $\le \pm 0.35 \%$ FSO									
Accuracy 1		pressure									
Influence effects		0.05 % FS									
	load: ≤ 0).1 % FSC)								
Long term stability	≤ ± 0.3 °	% FSO / y	ear at ref	erence co	nditions						
Response time	< 12 ms	ес									
¹ accuracy according to IEC 6077	70 – limit po	int adjustr	ment (non	-linearity,	hysteres	is, repe	atability)			
Thermal effects (Offset and Sp	an)										
Nominal pressure P _N [ba]	-1 0		<	0.40			≥ 0.40		> 40	
Tolerance band [% FSC)]	≤ ± 0.75		<u> </u>	£ 1			≤ ± 1		≤ ± 0.7	5
in compensated range [°C		20 85		0	70		-2	20 85		0 7	0
Permissible temperatures	-		-			,					
Permissible temperatures	medium	:		-4	10 125	°C					
· · · · · · · · · · · · · · · · · · ·		ics/enviro	nment:		10 85						
	storage:				100 100						
Electrical protection											
Short-circuit protection	permane	ent									
Reverse polarity protection	no dama	age, but a	lso no fun	ction							
Electromagnetic compatibility	emission	n and imm	nunity acc	ording to	EN 6132	6					
IO-Link											
Interface	IO-L ink	1.1; Slave	<u> </u>								
Data transfer		38.4 kBau									
Mode	SIO / IO										
Standard	IEC 611										
Mechanical stability	ILOUTI	010									
Vibration	10 0 / 25	5 Hz 2	kH2	-	ccording	to DINI I	N 6006	8.2.6			
			NI IZ						7		
Shock	500 g / 1	i IIIS		ec	accor	ung to	אם אווח	60068-2-27	1		

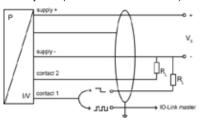
Materials		
Pressure port / Housing	stainless steel 1.4404 (316L)	
Display housing	standard: PA 6.6	
Seals (media wetted)	standard: FKM option: EPDM	others on request
Diaphragm	stainless steel 1.4435	others on request
Media wetted parts	pressure port, seal, diaphragm	
Miscellaneous		
Display	4-digit, red LED display, digit height 7 mm, range of indication -1999 +9999, visible range 22.5 x 10.5 mm, 4 LED's for unit switching (bar, mbar, PSI, MPa) status display contact: contact 1 : LED, green, contact 2: LED, yel	
Operation	2 buttons / functions according to VDMA 24574-1	
Turn-on time	110 msec	
Weight	approx. 220 g	
Operational life	100 million load cycles	
Current consumption	< 40 mA	
Protection class	IP 65 / IP 67	
Installation position	any ²	
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ³	

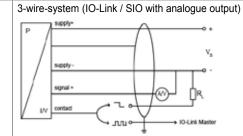
² Pressure transmitters are calibrated vertically with pressure port downwards. Changing the installation position could lead to minor zero offsets for pressure ranges $P_N \le 1$ bar.

³ This directive is only valid for devices with maximum permissible overpressure > 200 bar.

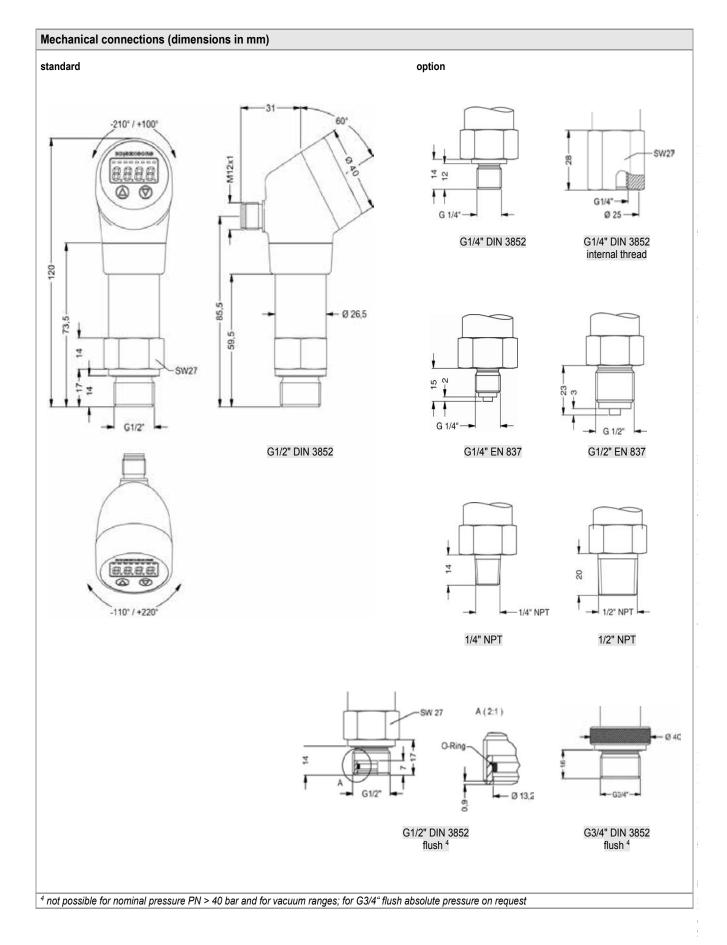
Wiring diagrams

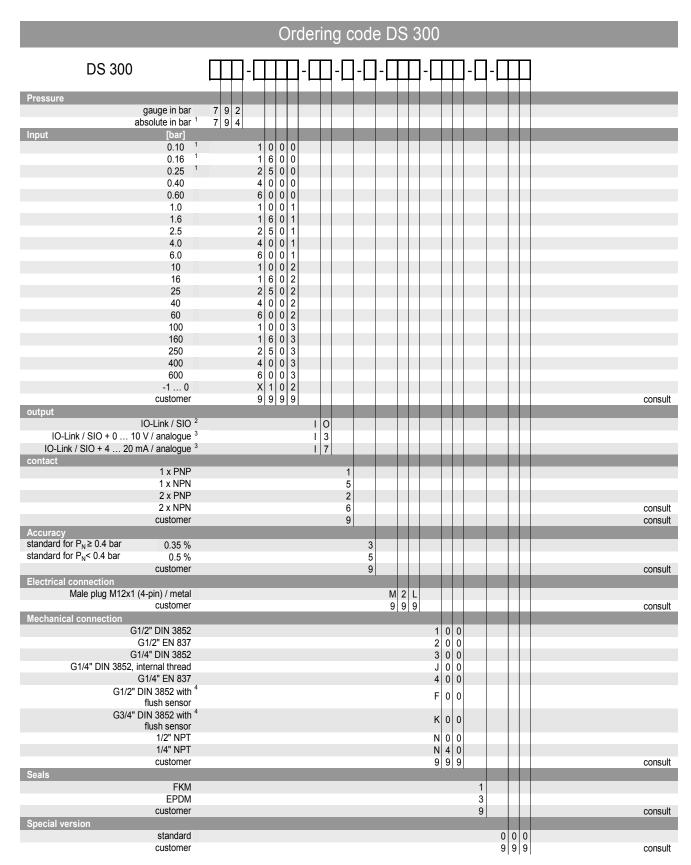






Pin configuration		
Electrical connections	M12x1 (4-pin) metal (without analogue output)	M12x1 (4-pin) metal (with analogue output)
Supply +	1	1
Supply –	3	3
Signal +	-	2
Communication / contact 1	4	4
Contact 2	2	-
Shield	pressure port	pressure port





¹ absolute pressure possible from 0.4 bar

² possible in combination with contact code 2, 6

 $^{^{\}rm 3}$ possible in combination with contact code 1, 5

 $^{^{4}}$ not possible for nominal pressure P_N > 40 bar; also not possible for vacuum ranges; for G3/4" flush nominal pressure abs. on request



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-versionEx 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)









Input pressure range

input pressure range													
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 1							15	15	25	50	
Nominal pressure		10 16 25 40 60 100 160						160	250	400	600		
gauge 1 / abs.	[bar]							100			100		
Level gauge 1	[mH ₂ O]	100	160	250	400			-	-	-	-	-	
Overpressure	[bar]	40	80	80	105			210	600	1000	1000	1000	
Burst pressure ≥	[bar]		50 120 120 210 420 420 1000 1250 1250 1250 ≥ 1 bar: unlimited vacuum resistance; P _N < 1 bar: on request										
Vacuum resistance				ed vacuu	m resistai	nce; P _N <	1 bar: or	request					
¹ from 60 bar: measurement s	starts with a	ambient pre	ssure										
Contact ²													
		1 DND or	-ntoot										
Standard		1 PNP co		Doontool	-								
Options			independent PNP contacts independent PNP contacts (possible with M12x1, 8-pin for 4 20 mA/3-wire;										
		4 maepe	naent Piv	P contact		ible with 10 V/3-wii		•	4 20 111	A/3-WIIE,			
Max. switching current		4 20 n	nA / 2- an	d 3 wire:					cuit reciet	ant: V	= V _S - 2\	,	
wax. Switching current			/ / 3-wire:						cuit resist		1 - VS - ZV	,	
Accuracy of contacts 3		standard			≤ ± 0.5 %				≤ ± 0.35				
		option:			$\leq \pm 0.25$		· N -	J					
Repeatability		≤ ± 0.1 %											
Switching frequency		max. 10											
Switching cycles		> 100 x	10 ⁶										
Delay time		0 100	sec										
² max. 1 contact for 2-wire cur	rrent signa	l with plug I	SO 4400 a	s well as 2	-wire curre	nt signal w	ith IS-prot	ection					
no contact possible with 3-w	ire in comb	bination with	n plug ISO	4400									
Analogue output (option	nally) / Sເ	ıpply											
2-wire current signal		4 20 m	nA / V _s =	13 36	V_{DC}								
		permissil	permissible load: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$ response time: < 10 msec										
2-wire current signal with		4 20 m	$4 20 \text{ mA} / V_S = 15 28 V_{DC}$										
IS-protection		permissible load: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ response time: < 10 msec											
3-wire current signal			$1A / V_S =$			stable (tur	n-down o	of span 1	:5) 4				
			ble load: I							-	se time: <		
3-wire voltage signal			$//V_{\rm S} = 1$	5 36 V	_{DC} p	ermissibl	e load: R	_{min} = 10 l	kΩ	respons	se time: <	3 msec	
without analogue output		$V_{\rm S} = 15$.											
Accuracy 3			: P _N < 0				P _N ≥	≥ 0.4 bar:	≤ ± 0.35	%FSO			
³ accuracy according to IEC 6	60770 lim	option:			± 0.25 %		-: !!:4\						
4 with turn-down of span the a	analogue s	ııı poırıı aajı ianal is adiı	ustriient (no usted auton	on-imeanty natically to	the new m	s, repeatat neasurina r	anae						
Thermal effects (Offset a						.ououg .	uge						
Nominal pressure P _N	[bar]		-1	0			< 0.40				≥ 0.40		
	% FSO]		≤ ± 0.				≤±1				± 0.75		
in compensated range	[°C]		-20				0 70				20 85		
Permissible temperature										_			
-		modium:	-40 12	5 °C	olootror	nice / onvi	ironmont	. 40	95 °C	ctoro	ge: -40	100 °C	
Permissible temperatures		medium.	- - -∪ 12	J U	CICCHOI	nics / envi	EIII	+0	00 C	รเบาส	y c4 0	100 0	
Electrical protection		i											
Short-circuit protection		permane											
Reverse polarity protection	n	-	ge, but al										
Electromagnetic compatib	oility	emission	and imm	unity acc	ording to	EN 6132	 6						
Mechanical stability													
Vibration		10 a RM	S (25 2	2000 Hz)	accord	ling to DII	N EN 600	068-2-6					
Shock		500 g / 1		/		ling to DII							
Materials		9, 1			20010	.5 .5 .511							
		otoinles-	otocl 4 4	404 (242	1.\								
Pressure port			steel 1.4										
Housing			steel 1.4		L)								
Display housing			A 6.6, polycarbonate										
Seals (media wetted)		standard			E								
		option:		d version									
D'ankan		-1		on reque									
Diaphragm			steel 1.4	•									
Media wetted parts		nraccura	nort sea	ie dianhr	aam								

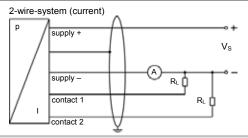
pressure port, seals, diaphragm 5 welded version only for pressure ports according to EN 837; possible for nominal pressure ranges $P_{\rm N} \le 40$ bar

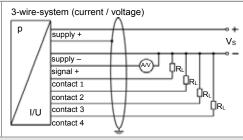
Media wetted parts

Explosion protection (only for	4 20 mA / 2-wire)
Approval AX14-DS 200	IBExU 06 ATEX 1050 X
	zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)
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 app	lication 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
ATEX Directive	2014/34/EU

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

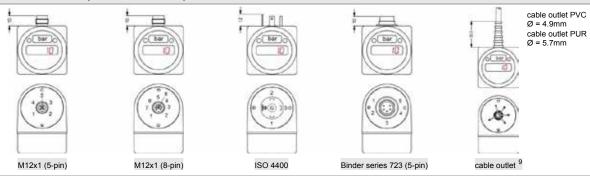
Wiring diagrams



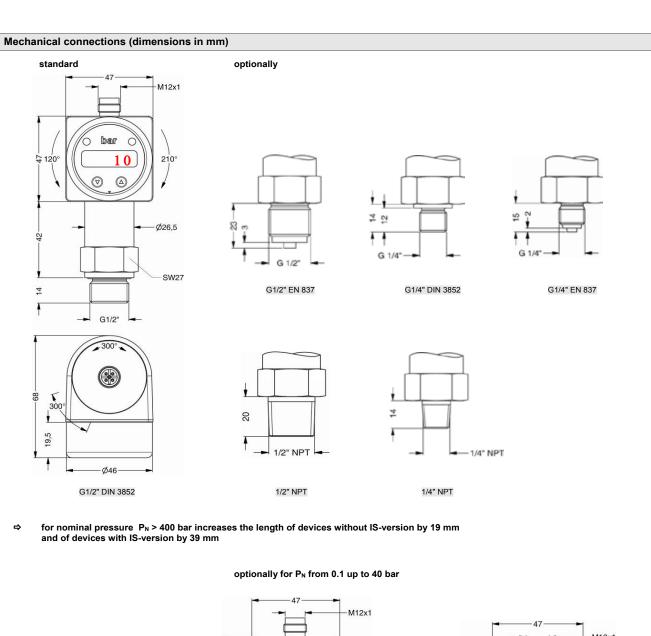


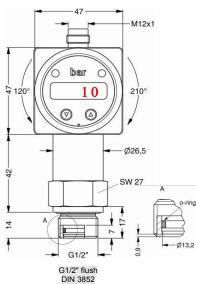
Pin configuration						
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	1	1	1	wh (white)
Supply –	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	bu (blue)
Contact 4	-	-	7	-	-	rd (red)
Shield	via pressure	plug housing/	via pressure	ground	plug housing/	gnye
Silleid	port	pressure port	port	contact	pressure port	(green-yellow)

Electrical connections (dimensions in mm)



⁹ different cable types and lengths available; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)





47 M12x1

120°

100

210°

Ø26,5

Ø40

G3/4"

G3/4" flush DIN 3852

⇒ metric threads and other versions on request

Ordering Code

	Or	dering co	de DS	3 200)				
DS 200]-[]-	\Box - \Box	□-□		- 🔲	- 🔲		
Pressure gauge in bar ¹	7 8 0								
gauge in mH ₂ O ¹ absolute in bar ²	7 8 0 7 8 H 7 8 1								
Input [mH ₂ O] [bar]	1 0 0								
1.6 0.16 ² 2.5 0.25 ²	1 6 0 0 2 5 0 0 4 0 0								
4 0.40 6 0.60	6 0 0								
10 1.0 16 1.6		1							
25 2.5 40 4.0	4 0 0	1							
60 6.0 100 10	6 0 0	1 2							
160 16 250 25	1 0 0 1 1 6 0 2 5 0 1 4 0 0 1	2							
400 40 600 60 100	4 0 0 2 6 0 0 3 1 0 0 3	2 2 3							
160 160 250	1 6 0	3							
400 600	4 0 0	3							
-1 0 customer	6 0 0 1 1 0 0 1 1 6 0 0 1 1 6 0 0 0 1 1 6 0 0 0 1 1 6 0 0 0 1 1 0 1 1 0 1 1 0 1 1 1 1	2							consult
Analogue output without	5/5/5/	0							oonbalk
4 20 mA / 2-wire 0 10 V / 3-wire		1 3							
4 20 mA / 3-wire, adjustable Intrinsic safety 4 20 mA / 2-wire ³		7J E							
Contact		9							consult
1 contact 3,	4	1							
2 contacts 3,	4								
4 contacts ⁵	4	2 4	_						
Accuracy standard for $P_N > 0.4$ bar 0.35% standard for $P_N \le 0.4$ bar 0.5%	4		3 5						
$ \begin{array}{c c} & 4 \text{ contacts} & 5 \\ \hline \textbf{Accuracy} \\ \text{standard for $P_N > 0,4$ bar} & 0.35 \% \\ \text{standard for $P_N \le 0,4$ bar} & 0.5 \% \\ \text{option for $P_N \ge 0,4$ bar} & 0.25 \% \\ \text{customer} \\ \end{array} $	•		3 5 2 9						consult
$\begin{array}{c} & 4 \text{ contacts} \ 5 \\ \hline \text{Accuracy} \\ \text{standard for $P_N > 0,4$ bar} \\ \text{standard for $P_N \le 0,4$ bar} \\ \text{option for $P_N \ge 0,4$ bar} \\ \hline \text{option for $P_N \ge 0,4$ bar} \\ \hline \text{customer} \\ \hline \hline \text{Electrical connection} \\ \hline \text{Male plug M12x1 (5-pin) /} \end{array}$	1		5 2 9	1					consult
$\begin{array}{c} & 4\ contacts\ ^5\\ \hline \textbf{Accuracy}\\ standard\ for\ P_N > 0,4\ bar & 0.35\ \%\\ standard\ for\ P_N \leq 0,4\ bar & 0.25\ \%\\ option\ for\ P_N \geq 0,4\ bar & 0.25\ \%\\ customer\\ \hline \textbf{Electrical\ connection}\\ \hline \textbf{Male\ plug\ M12x1\ (5-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \end{array}$			5 2 9 N 0						consult
$\begin{array}{c} & 4\ contacts\ ^5\\ \hline {Accuracy}\\ standard\ for\ P_N > 0,4\ bar & 0.35\ \%\\ standard\ for\ P_N \le 0,4\ bar & 0.5\ \%\\ option\ for\ P_N \ge 0,4\ bar & 0.25\ \%\\ \hline customer\\ \hline Electrical\ connection\\ \hline Male\ plug\ M12x1\ (5-pin)\ /\ plastic\ version\\ Male\ plug\ M12x1\ (8-pin)\ /\ 5\\ plastic\ version\\ \hline Male\ plug\ M12x1\ (5-pin)\ /\ blastic\ version\\ \hline \end{array}$	1		5 2 9	0					consult
$\begin{array}{c} \text{Accuracy} \\ \text{Standard for $P_N > 0.4$ bar} \\ \text{Standard for $P_N \le 0.4$ bar} \\ \text{Option for $P_N \ge 0.4$ bar} \\ Opt$			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4					consult
$\begin{array}{c} & 4\ contacts\ ^5\\ \hline \textbf{Accuracy}\\ standard\ for\ P_N > 0,4\ bar & 0.35\ \%\\ standard\ for\ P_N \geq 0,4\ bar & 0.5\ \%\\ option\ for\ P_N \geq 0,4\ bar & 0.25\ \%\\ customer\\ \hline \textbf{Electrical\ connection}\\ \hline \textbf{Male\ plug\ M12x1\ (5-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (5-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (5-pin)\ /}\\ \hline \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \ \ \textbf{Male\ plug\ M12x1\ (8-pin)\ /}\\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ $	•		5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4					
$\begin{tabular}{lll} & 4 contacts & 5 \\ \hline Accuracy & standard for $P_N > 0.4$ bar & 0.35 \% \\ standard for $P_N \le 0.4$ bar & 0.5 \% \\ option for $P_N \ge 0.4$ bar & 0.25 \% \\ \hline & customer \\ \hline Electrical connection & Male plug M12x1 (5-pin) / plastic version \\ Male plug M12x1 (8-pin) / 5 \\ plastic version & Male plug M12x1 (5-pin) / 5 \\ plastic version & Male plug M12x1 (5-pin) / 5 \\ Male and female plug ISO 4400 & 4 \\ Male plug Binder series 723 (5-pin) & Cable outlet incl. cable 6 \\ \hline & customer \\ \hline Mechanical connection & & & & \\ \hline \end{tabular}$			5 2 9 N 0 M 5 N 1 1 0	0 1 0 4 0 9	0 0				consult
Accuracy $ \begin{array}{c} 4 \ contacts \ ^5 \\ \hline \ Accuracy \\ standard \ for \ P_N > 0.4 \ bar \\ option \ for \ P_N \leq 0,4 \ bar \\ option \ for \ P_N \geq 0,4 \ bar \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9	0 0 0 0 0 0 0 0				
$\begin{tabular}{lll} & 4 contacts & 5 \\ \hline Accuracy & standard for $P_N > 0.4$ bar & 0.35 \% \\ standard for $P_N \le 0.4$ bar & 0.5 \% \\ option for $P_N \ge 0.4$ bar & 0.25 \% \\ \hline & customer \\ \hline Electrical connection & Male plug M12x1 (5-pin) / plastic version \\ Male plug M12x1 (8-pin) / 5 \\ plastic version \\ Male plug M12x1 (5-pin) / metal version \\ Male plug M12x1 (5-pin) / metal version \\ Male plug Binder series 723 (5-pin) \\ Cable outlet incl. cable 6 \\ \hline & customer \\ \hline Mechanical connection & G1/2" DIN 3852 \\ \hline & G1/2" EN 837 \\ \hline & G1/4" EN 837 \\ \hline & G1/2" DIN 3852 with & 7 \\ \hline \end{tabular}$			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				
Accuracy standard for $P_N > 0.4$ bar 0.35% standard for $P_N < 0.4$ bar 0.5% option for $P_N \ge 0.4$ bar 0.5% option for $P_N \ge 0.4$ bar 0.25% customer Electrical connection Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (8-pin) / 5 plastic version Male plug M12x1 (5-pin) / metal version Male plug M12x1 (5-pin) / 5 plastic version Male plug Binder series 723 (5-pin) Cable outlet incl. cable 6 customer Mechanical connection G1/2" DIN 3852 G1/2" EN 837 G1/4" DIN 3852 G1/4" DIN 3852 G1/4" DIN 3852 with 7 flush sensor G3/4" DIN 3852 with 7			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0				
Accuracy standard for $P_N > 0.4$ bar 0.35 % standard for $P_N \le 0.4$ bar 0.5 % option for $P_N \ge 0.4$ bar 0.25 % customer Electrical connection Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (6-pin) / plastic version Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (5-pin) / plastic version Male plug Binder series 723 (5-pin) Cable outlet incl. cable 6 customer Mechanical connection G1/2" DIN 3852 G1/2" EN 837 G1/2" DIN 3852 G1/2" EN 837 G1/2" DIN 3852 with 7 flush sensor G3/4" DIN 3852 with 7 flush sensor G3/4" DIN 3852 with 7 flush sensor 1/2" NPT			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0				
Accuracy standard for $P_N > 0.4$ bar 0.35% standard for $P_N < 0.4$ bar 0.5% option for $P_N ≥ 0.4$ bar 0.5% option for $P_N ≥ 0.4$ bar 0.25% customer Electrical connection Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (6-pin) / plastic version Male plug M12x1 (5-pin) / Male plug M12x1 (5-pin) / Male plug M12x1 (5-pin) / Male plug Binder series 723 (5-pin) Cable outlet incl. cable 6 customer Mechanical connection G1/2" DIN 3852 G1/2" EN 837 G1/4" DIN 3852 G1/4" EN 837 G1/4" DIN 3852 with 7 flush sensor G3/4" DIN 3852 with 7 flush sensor 1/2" NPT 1/4" NPT customer			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0				
Accuracy $ \begin{array}{c c} & 4 \ contacts \ 5 \\ \hline \textbf{Accuracy} \\ \textbf{standard for P_N} > 0.4 \ bar & 0.35 \% \\ \textbf{standard for P_N} \leq 0,4 \ bar & 0.5 \% \\ \textbf{option for P_N} \geq 0,4 \ bar & 0.25 \% \\ \hline \textbf{customer} \\ \hline \textbf{Electrical connection} \\ \hline \textbf{Male plug M12x1 (5-pin) / plastic version} \\ \hline \textbf{Male plug M12x1 (8-pin) / 5 plastic version} \\ \hline \textbf{Male plug M12x1 (5-pin) / plastic version} \\ \hline \textbf{Male plug M12x1 (5-pin) / metal version} \\ \hline \textbf{Male plug Binder series 723 (5-pin) } \\ \hline \textbf{Cable outlet incl. cable 6 customer} \\ \hline \textbf{Mechanical connection} \\ \hline \textbf{G1/2" DIN 3852 G1/2" EN 837 G1/4" DIN 3852 G1/4" EN 837 G1/2" DIN 3852 with 7 flush sensor G3/4" DIN 3852 with 7 flush sensor 1/2" NPT 1/4" NPT customer} \\ \hline \textbf{Seals} \\ \hline \textbf{SEKM} \\ \hline \end{array}$			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0	1			consult
Accuracy standard for P _N > 0,4 bar 0.35 % standard for P _N ≤ 0,4 bar 0.5 % option for P _N ≥ 0,4 bar 0.25 % customer Electrical connection Male plug M12x1 (5-pin) / plastic version Male plug M12x1 (8-pin) / 5 plastic version Male plug M12x1 (5-pin) / metal version Male plug M12x1 (5-pin) / metal version Male plug Binder series 723 (5-pin) Cable outlet incl. cable 6 customer Mechanical connection G1/2" DIN 3852 G1/2" EN 837 G1/4" DIN 3852			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0	1 2 9			consult
Accuracy $ \begin{array}{c c} & 4 \ contacts \ 5 \\ \hline Accuracy \\ standard for P_N > 0.4 \ bar \\ option for P_N \leq 0.4 \ bar \\ option for P_N \geq 0.4 \ bar \\ option for P_N \geq$			5 2 9 N 0 M 5 N 1 1 0 2 0	0 1 0 4 0 9 9 1 2 3 3 4 F	0 0	1 2 9	0 0 9 9	0	consult

¹ from 60 bar: measurement starts with ambient pressure
2 absolute pressure possible from 0.4 bar
3 with Ex version max. 1 contact is possible
4 with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible
5 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request
6 standard: 2 m PVC cable without ventilation tube, others on request
7 not possible for nominal pressure P_N > 40 bar; for G3/4" flush nominal pressure abs. on request
8 welded version only with pressure ports according to EN 837; possible for nominal pressure ranges P_N ≤ 40 bar



Electronic Pressure Switch

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 400 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 port PVDF
- customer specific versions

The electronic pressure switch DS 201 is the successful combination of

- intelligent pressure switch
- digital display

and has been specially designed for universal usage in industry applications. The DS 201 is available with flush pressure ports for viscous, pasty and highly contaminated media.

As standard the DS 201 offers a PNP contact and a rotable 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



Environmental engineering (water - sewage - recycling)









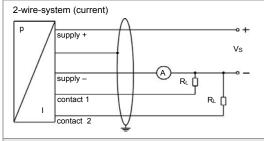
Input pressure range 1																			
Nominal pressure gauge	e [bar]	-10	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs.	[bar]	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Level gauge	[mH ₂ O]	-	4	6	10	16	25	40	60	100	160	250	400	600	-	-	-	-	-
Overpressure	[bar]	4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure ≥	[bar]	7	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		P _N ≥ 1	bar: u	nlimit	ed va	cuum	resis	tance											
P _N < 1 bar: on request																			
¹ PVDF pressure port poss	ible for no	minal pre	essure	ranges	up to	60 ba	r												

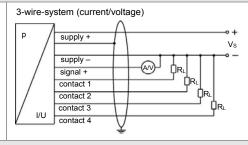
Contact ²										
Standard	1 PNP contact									
Options	2 independent PNP contacts									
	4 independent PNP contacts (possible with M12 0 10 V/3-wire o) ;							
Max. switching current		25 mA, short-circuit resistant; \ 25 mA, short-circuit resistant	$V_{\text{Switch}} = V_{\text{S}} - 2V$							
Accuracy of contacts 3	≤± 0.5 % FSO	,								
Repeatability	≤±0.2 % FSO									
Switching frequency	max. 10 Hz	ax. 10 Hz								
Switching cycles	> 100 x 10 ⁶									
Delay time	0 100 sec									
² max. 1 contact for 2-wire current s no contact possible with 3-wire in c	ignal with plug ISO 4400 as well as 2-wire current signal v combination with plug ISO 4400	vith IS-protection								
Analogue output (optionally)	/ Supply									
2-wire current signal	4 20 mA / V _S = 13 36 V _{DC}									
	permissible load: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$									
2-wire current signal with	4 20 mA / V _S = 15 28 V _{DC}	·								
IS-protection	permissible load: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$		se time: < 10 msec							
3-wire current signal	$4 \dots 20 \text{ mA} / V_S = 19 \dots 30 V_{DC}$ adjustable (turn-	down of span 1:5) ⁴								
	permissible load: $R_{max} = 500 \Omega$ response time: < 0.5 sec									
3-wire voltage signal	$0 \dots 10 \text{ V / V}_S = 15 \dots 36 \text{ V}_{DC}$									
1100	permissible load: $R_{min} = 10 \text{ k}\Omega$	respons	se time: < 3 msec							
Without analogue output	V _S = 15 36 V _{DC}									
Accuracy ³	≤ ± 0.5 % FSO									
 accuracy according to IEC 60770 with turn-down of span the analog 	 limit point adjustment (non-linearity, hysteresis, repeatalue signal is adjusted automatically to the new measuring 	bility) range								
Thermal effects (Offset and S	pan) / Permissible temperatures									
Thermal error	≤±0.2 % FSO / 10 K									
in compensated range	-25 85 °C									
Permissible temperatures ⁵	medium: -40 125 °C electronics / environment: -40 85 °C storage: -40 100 °C									
⁵ for pressure port of PVDF the mini	mum permissible temperature is -30 °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									
Mechanical stability	•									
Vibration	10 g RMS (25 2000 Hz) according to DI	N EN 60068-2-6								
Shock	· · · · · · · · · · · · · · · · · · ·	N EN 60068-2-27								
Materials	according to 2.									
Pressure port / housing		pressure port	housing							
Tresource port/ Housing	standard: option for G1/2" open port (up to 60 bar): options for G3/4" flush (0.6 bar $\leq P_N \leq 25$ bar):	stainless steel 1.4404 PVDF PVDF	stainless steel 1.4404 stainless steel 1.4404 PVDF							
Display housing	PA 6.6, polycarbonate									
Seals (media wetted)	standard: FKM option: EPDM (P _N ≤ 160 bar)									
	others on request									
Diaphragm	ceramics Al ₂ O ₃ 96 %									
Media wetted parts	pressure port, seals, diaphragm									

Explosion protection (only for	4 20 mA / 2-wire)
Approval AX14-DS 201	IBExU 06 ATEX 1050 X
	zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)
Safety tech. 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 app	olication 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)
Option oxygen application ⁷	for P _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C
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
Weight	approx. 200 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) 8
ATEX Directive	2014/34/EU
7 not possible with flush pressure por	's

f not possible with flush pressure ports
 this directive is only valid for devices with maximum permissible overpressure > 200 bar

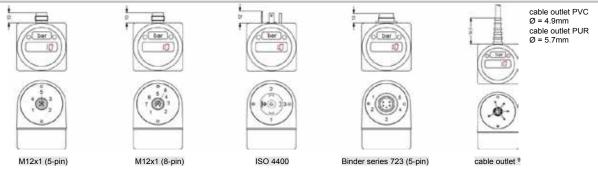
Wiring diagrams



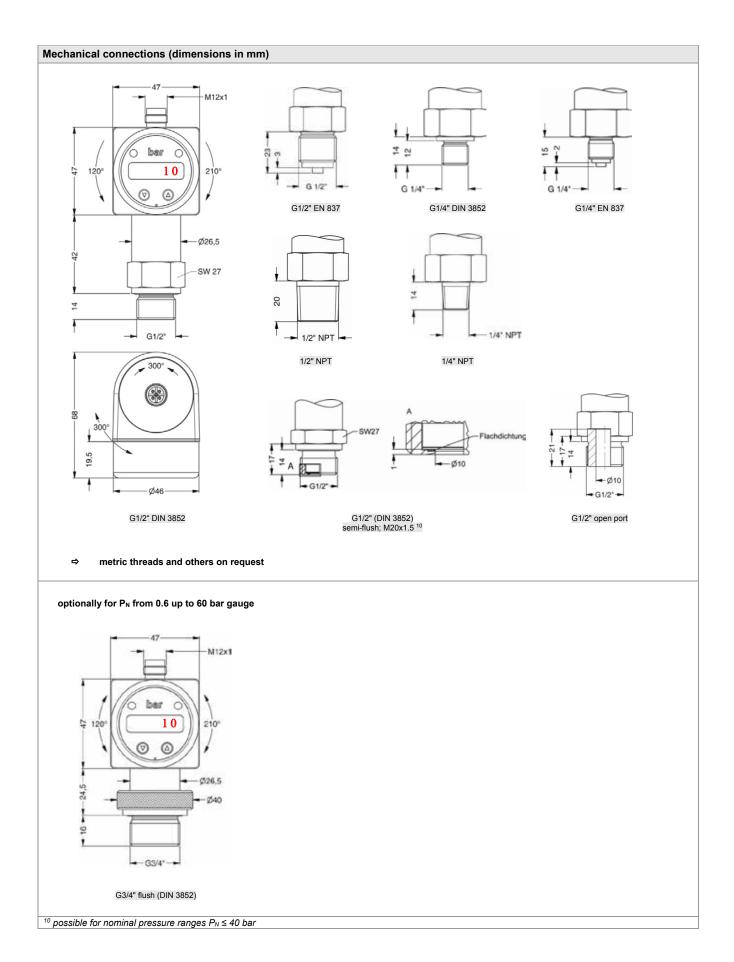


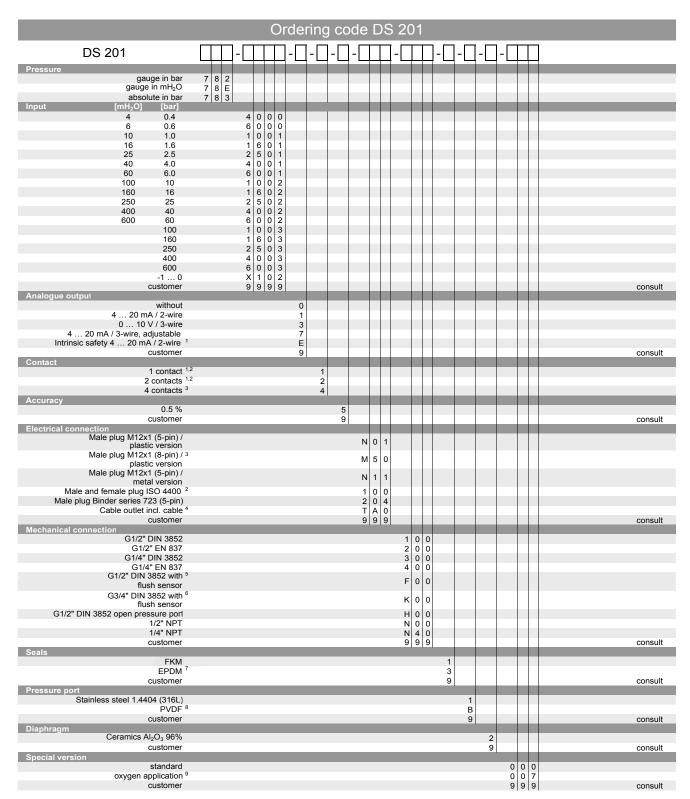
Pin configuration						
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	1	1	1	wh (white)
Supply –	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	bu (blue)
Contact 4	-	-	7	-	-	rd (red)
Shield	via pressure	plug housing/	via pressure	ground con-	plug housing/	gnye
Sillelu	port	pressure port	port	tact	pressure port	(green-yellow)

Electrical connections (dimensions in mm)



⁹ different cable types and lengths available, permissible temperature depends on kind of cable; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)





¹ with Ex version max.1 contact possible

² with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

³ 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

⁴ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request ⁵ possible for nominal pressure ranges P_N ≥ 0.6 bar up to PN ≤ 25 bar gauge, absolute on request

bossible for nominal pressure ranges $P_N \ge 0.6$ bar up to $P_N \le 60$ bar gauge

 $^{^{7}}$ possible for nominal pressure ranges $P_{N} \le 160$ bar

⁸ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar) and G3/4" DIN 3852 with flush sensor (0.6 bar≤ P_N ≤ 25 bar), (min. permissible temperature -30°C)

⁹ oxygen application with FKM-seal up to 25 bar possible, flush version on request



Electronic Pressure Switch

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 6 bar 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-versionEx ia = intrinsically safe for gases
- oxygen application
- customer specific versions

The electronic pressure switch DS 202 is the successful combination of

- robust pressure transmitter
- digital display

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

As standard the DS 202 offers a PNP contact and a rotable display module with 4-digit LED display. The transmitters are suitable for an unrestricted use in oxygen applications up to 600 bar and an intrinsically safe IS-Version.

Preferred areas of use are



Medical technology



Plant and machine engineering



Refrigeration



Oxygen application









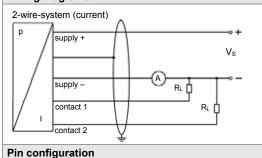
Input pressure range												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	12	20	32	50	80	120	200	320	500	800	1 200
Burst pressure ≥	[bar]	30	50	80	125	200	300	500	800	1 400	2 000	3 000
Vacuum resistance		unlimited										

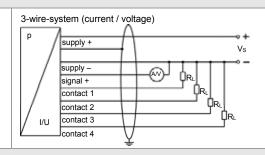
Contact ¹		
Number, type	standard: 1 PNP contact option: 2 independent PNP contacts 4 independent PNP contacts (possible with M12x1 8-pin for 4 20 mA / 3-wire)	
Max. switching current	4 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resis contact rating 125 mA, short-circuit resis	
Accuracy of contacts ²	≤±0.5 % FSO	
Repeatability	≤ ± 0.1 % FSO	
Switching frequency	max. 10 Hz	
Switching cycles	> 100 x 10 ⁶	
Delay time	0 100 sec	
¹ with IS-protection max. 1 contact pos	ssible	
Analogue output (optionally) /	· · · ·	
2-wire current signal	4 20 mA / V_S = 13 36 V_{DC} permissible load: R_{max} = [($V_S - V_{Smin}$) / 0.02 A] Ω	response time: < 10 msec
2-wire current signal with	$4 \dots 20 \text{ mA} / V_S = 15 \dots 28 V_{DC}$	
IS-protection	permissible load: $R_{\text{max}} = [(V_S - V_{S \text{ min}}) / 0.02 \text{ A}] \Omega$	response time: < 10 msec
3-wire current signal	4 20 mA / V_S = 19 30 V_{DC} adjustable (turn-down of span up to 1:5) permissible load: R_{max} = 500 Ω	response time: < 0.5 sec
3-wire voltage signal	0 10 V / V_S = 15 36 V_{DC} permissible load: R_{min} = 10 $k\Omega$	response time: < 3 msec
Without analogue output	V _S = 15 36 V _{DC}	
Accuracy ²	≤±0.5 % FSO	
³ with turn-down of span the analogue	imit point adjustment (non-linearity, hysteresis, repeatability) signal is adjusted automatically to the new measuring range	
Thermal effects (Offset and Spa	,	
Thermal error	± 0.3 % FSO / 10 K	
in compensated range	0 70 °C	
Permissible temperatures	10 105 00	
Permissible temperatures	medium: -40 125 °C electronics / environment: -40 85 °C storage: -40 100 °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	
Mechanical stability	, ,	
Vibration	10 g RMS (25 2000 Hz) according to DIN EN 60068-2-6	
Shock	500 g / 1 msec according to DIN EN 60068-2-27	
Materials		
Pressure port	stainless steel 1.4571 (316 Ti)	
•	stainless steel 1.437 (316 L)	
Housing Display housing		
Display housing Seals (media wetted)	PA 6.6, polycarbonate	
	none (welded) stainless steel 1.4542 (17-4PH)	
Diaphragm Media wetted parts	pressure port, diaphragm	
Explosion protection (only for	· · · · · · · · · · · · · · · · · · ·	
Approval AX14-DS 202	IBExU 06 ATEX 1050 X	
	zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cab	ie)
•	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H}$,
Safety technical maximum values Max. switching current ⁴		,
values Max. switching current ⁴ Permissible temperatures for	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C \approx 0$ nF, $L_i \approx 0$ μH	
values Max. switching current ⁴	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C \approx 0$ nF, $L_i \approx 0$ μH 70 mA	pF/m

Miscellaneous	
Display	4-digit, red 7-segment-LED display, digit height 7 mm, digit width 4.85 mm (angle 10°); 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 (without contacts)	2-wire signal output current: max. 25 mA 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
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) ⁵
ATEX Directive	2014/34/EU

⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams





ground con-

tact

plug housing/

pressure port

gnye (green-yellow)

Till Comiguration									
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)			
Supply +	1	1	1	1	1	wh (white)			
Supply –	3	3	3	2	3	bn (brown)			
Signal + (only 3-wire)	2	2	2	3	2	gn (green)			
Contact 1	4	4	4	3	4	gy (grey)			
Contact 2	5	5	5	-	5	pk (pink)			
Contact 3	-	-	6	-	-	bu (blue)			
Contact 4	-	-	7	-	-	rd (red)			

via pressure

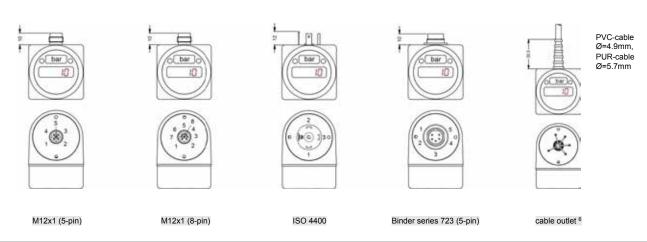
port

plug housing/

pressure port

Electrical connections (dimensions in mm)

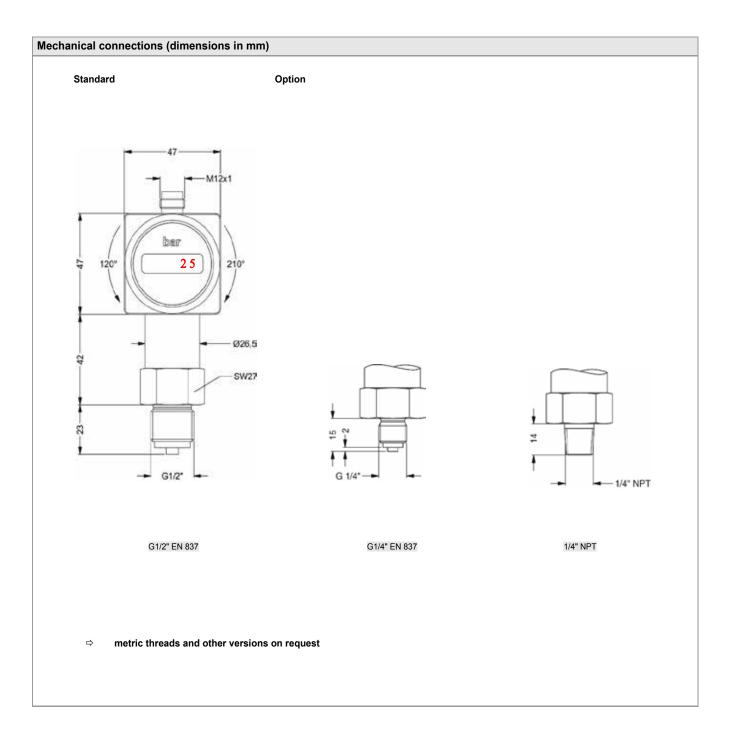
Shield



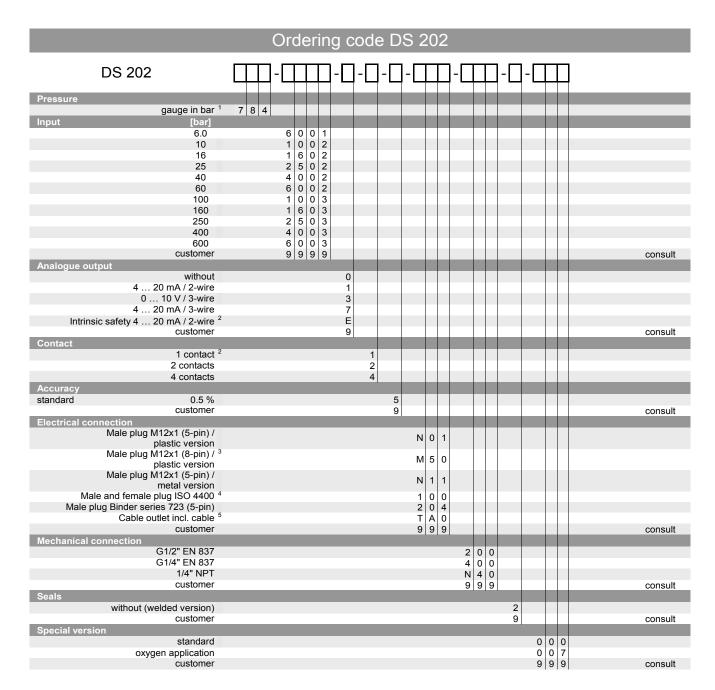
⁶ different cable types and lengths available, permissible temperature depends on kind of cable; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)

via pressure

port



Ordering Code



¹ from 60 bar: measurement starts with ambient pressure

² with Ex version max. 1 contact is possible

³ 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

⁴ with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

⁵ different cable types and lengths deliverable, standard: 2 m PVC cable without ventilation tube, optionally cable with ventilation tube



Electronic Pressure Switch

Without Media Isolation

accuracy according to IEC 60770: 0.35 % FSO

Nominal pressure

from 0 ... 10 mbar up to 0 ... 1000 mbar

Contacts

1, 2 or 4 independent 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
- customer specific versions

The electronic pressure switch DS 210 is the successful combination of

- intelligent pressure switch
- digital display

and has been specially designed for measuring of very small overpressure and for vacuum applications. Permissible media are gases, pressurized air and thin non aggressive media.

As standard the DS 210 offers a PNP-contact and a rotable display module. Additional features 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



Laboratory techniques







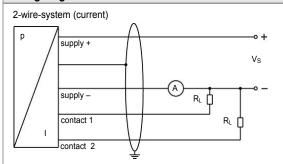


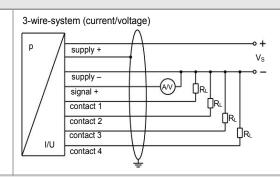
Input pressure range													
Nominal pressure gauge	[mbar]	-1000 0	10	16	25	40	60	100	160	250	400	600	1000
Overpressure	[bar]	3	0.2	0.2	0.5	0.5	0.5	1	2	3	3	3	3
Burst pressure	[bar]	5	0.3	0.3	0.75	0.75	0.75	1.5	3	5	5	5	5

Contact ¹								
Standard	1 PNP contact							
Options	2 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 20 mA/3-wire; 0 10 V/3-wire on request)							
Max. switching current	4 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; V _{switch} = V _s - 2V contact rating 125 mA, short-circuit resistant							
Accuracy of contacts ²	standard:							
Repeatability	≤± 0.1 % FSO							
Switching frequency	max. 10 Hz							
Switching cycles	> 100 x 10 ⁶							
Delay time	0 100 sec							
¹ max. 1 contact for 2-wire current signal no contact possible with 3-wire in comb		2-wire current signal with Ex	-protection					
Analogue output (optionally) / Su	pply							
2-wire current signal	4 20 mA / V_S = 13 permissible load: R_{max} =		resp	oonse time: < 10 msec				
2-wire current signal with	4 20 mA / V _S = 15							
Ex-protection	permissible load: R _{max} =	$[(V_S - V_{S min}) / 0.02 A] \Omega$		oonse time: < 10 msec				
3-wire current signal	4 20 mA / V_S = 19 30 V_{DC} adjustable (turn-down of span max. 1:5) 3 permissible load: R_{max} = 500 Ω response time: < 3 sec							
3-wire voltage signal	0 10 V / V _S = 15 36			oonse time: < 3 msec				
Without analogue output	V _S = 15 36 V _{DC}	permissions isua.	100					
Accuracy ²	standard:	≤ ± 0.35 % FSO						
riccardoy	nominal pressure ≤ 100 r							
² accuracy according to IEC 60770 – limi ³ with turn-down of span the analogue sign	t point adjustment (non-linear	ity, hysteresis, repeatability)						
Thermal effects (Offset and Span								
Nominal pressure P _N [mbar]	-1000 0	≤ 100	≤ 400	> 400				
Tolerance band [% FSO]	≤ ± 0.75	≤±1.5	≤±1	≤ ± 0.75				
in compensated range [°C]	-20 85	0 50	0 70	-20 85				
Permissible temperatures	-20 00	0 00	0 10	-20 00				
Permissible temperatures	medium: -40 125 °C	electronics / environr	mont: 40 85 °C	storage: -40 100 °C				
Electrical protection	medium40 125 C	electionics / environi	11611L -40 05 C	Storage40 100 C				
Short-circuit protection	normanont							
·	permanent							
Reverse polarity protection	no damage, but also no function emission and immunity according to EN 61326							
Electromagnetic compatibility	erriission and immunity a	iccording to EN 61326						
Mechanical stability								
Vibration	10 g RMS (25 2000 Hz) according to DIN EN 60068-2-6							
Shock	500 g / 1 msec	according to DIN EN	1 60068-2-27					
Materials								
Pressure port	stainless steel 1.4404 (316L)							
Housing	stainless steel 1.4404 (316L)							
Display housing	PA 6.6, Polycarbonate							
Seal (media wetted)	FKM							
Sensor	stainless steel 1.4404 (3	16L), silicon, Epoxy or RT	V, glass					
Media wetted parts								
Explosion protection (for 2-wire current signal)								
Approval AX14-DS 210	IBExU 06 ATEX 1050 X zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)							
Safety technical maximum	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C ≈ 0 \text{ nF}, L_i ≈ 0 \text{ μH}$							
values Max. switching current ⁴	70 mA							
Permissible temperatures for								
environment	-25 70 °C							
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 100 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m							
⁴ the real switching current in the applica	ion depends on the power su	oply 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 (without contacts)	2-wire signal output current: max. 25 mA 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
Weight	approx. 180 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

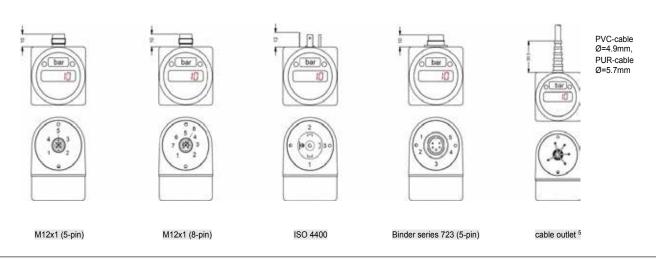
Wiring diagrams



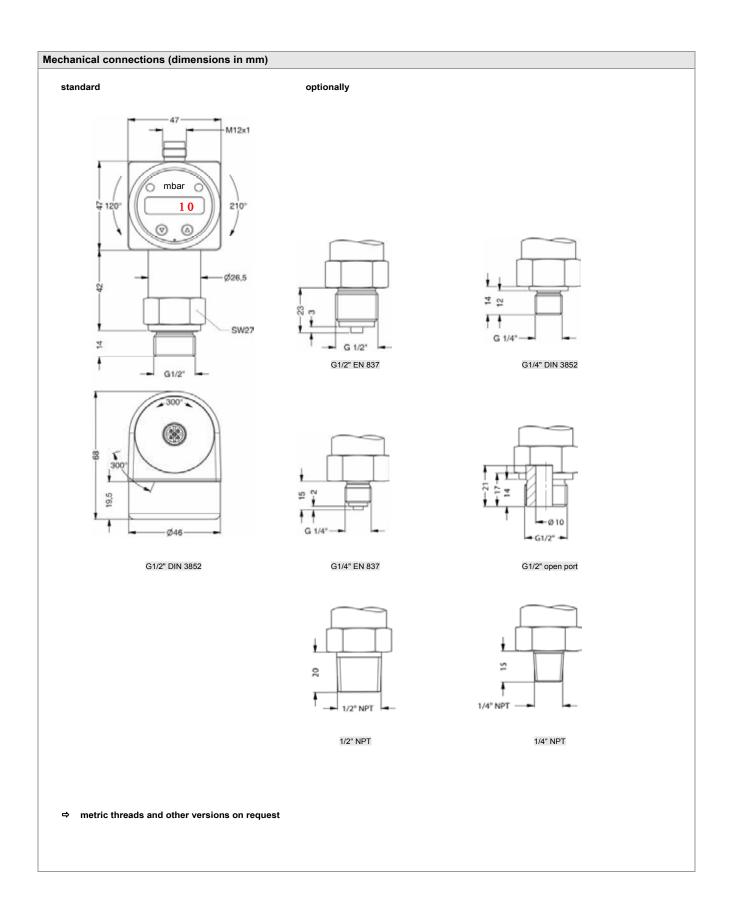


Pin configuration						
Electrical connection	M12x1 plastic (5-pin)	M12x1 metal (5-pin)	M12x1 plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	1	1	1	wh (white)
Supply –	3	3	3	2	3	bn (brown)
Signal + (only 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	bu (blue)
Contact 4	-	-	7	-	-	rd (red)
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact	plug housing/ pressure port	gnye (green-yellow)

Electrical connections (dimensions in mm)



⁵ different cable types and lengths available, permissible temperature depends on kind of cable; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)



		(Or	de	rii	ng	J C	od	e C	S	2	10									
DS 210		Ш.]-		-[]-[]-[-[Ш	 - []-[Ţ			
Pressure																					
gauge Input [mbar]	7	8 A		-								_				_					
10	_		0	1	0 0	0								т				Т			
16			0	1	6 0)						П									
25 40			0	2	5 0	וכ															
60			0	6	0 0	5															
100			1	0	0 0																
160 250			1	6 5	0 0) 															
400			4	0	0 0)															
600			6	0	0 0)															
1000 -1000 0			1 Y	0	0 1	1															
customer			9	1	9 9	9															consult
Analogue output																					
without							0														
4 20 mA / 2-wire 0 10 V / 3-wire							1														
4 20 mA / 3-wire, adjustable							7 E														
Intrinsic safety 4 20 mA / 2-wire customer							9														consult
Contact							9														COIISUIL
1 contact 1	, 2							1				П		Т	П			Т	Т		
2 contacts 3								2													
Accuracy	-	-						4						i						_	_
standard for $P_N > 0.1$ bar 0.35%	_	_	т					_	3			П		Т				Т	Т		
standard for P _N ≤ 0.1 bar 0.5 % customer									5 9												consult
Electrical connection									Ü												CONOUN
Male plug M12x1 (5-pin) /											N C) 1									
plastic version Male plug M12x1 (8-pin) / ³																					
plastic version										ı	M 5	5 0									
Male plug M12x1 (5-pin) / metal version										-	N 1	1 1									
Male and female plug ISO 4400 ²												0 0									
Male plug Binder series 723 (5-pin)											2 () 4									
Cable outlet incl. cable 4											T	A 0 9 9									
Mechanical connection											9 S	9 9								_	consult
G1/2" DIN 3852													1	0	0						
G1/2" EN 837													2		0						
G1/4" DIN 3852 G1/4" EN 837													3		0						
G1/2" DIN 3852 open pressure port													H	1 0	0						
1/2" NPT													N	1 0	0						
1/4" NPT customer													N Q	1 4 1 a	0 0 0 9						consult
Seals															10						CONSUIT
FKM																1		T			
customer Special version																9					consult
Special version standard																	() (0 0		
customer																	9	9 9	0 9		consult

¹ with Ex version max. 1 contact is possible

with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

3 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

 $^{^4}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request



DS 214

Electronic Pressure Switch for Very High Pressure

Thinfilm Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO

Nominal pressure

from 0 ... 600 bar up to 0 ... 2 200 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
- pressure sensor welded
- extremely robust and excellent longterm stability

Optional versions

- adjustability of span and offset (4 ... 20 mA / 3-wire)
- customer specific versions

The electronic pressure switch DS 214 for very high pressure up to 2 200 bar has been designed especially for use in plant and machine engineering as well as in mobile hydraulics.

The DS 214 has one 1 contact with standard version, this can optionally be upgraded up to four independent contacts.

Via the rotatable modul with an integrated 4-digit display the DS 214 can be programmed easily and comfortably.

Preferred areas of use are



Plant and machine engineering



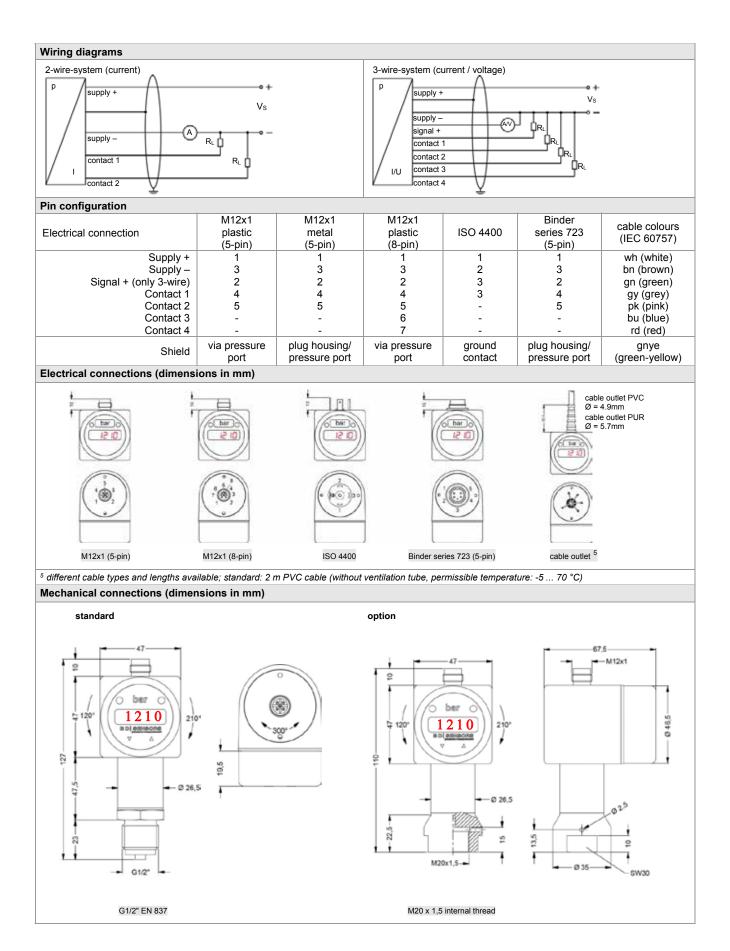
Commercial vehicles and mobile hydraulics

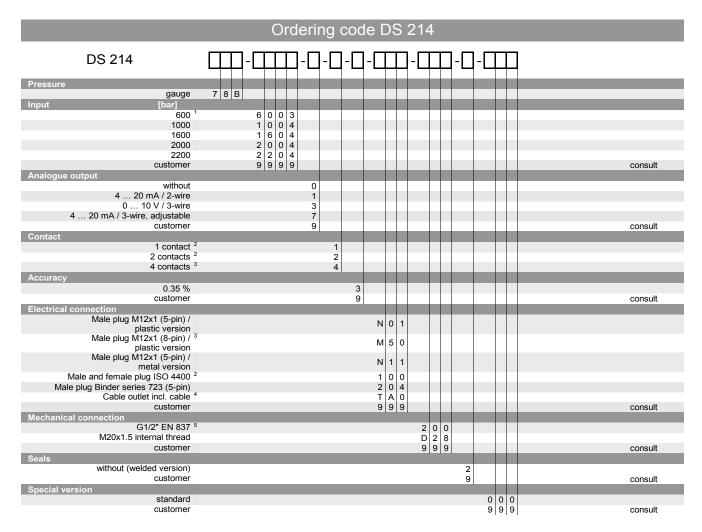






Nominal pressure gauge (bar) 600 ¹ 1000 1600 2000 2200 Overpressure (bar) sortly available with pressure port G1/2" EN 837 EXAMORDA STANDARD STANDA
¹ only available with pressure port G1/2" EN 837 Contact ² Standard 1 PNP contact Options 2 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 20 mA/3-wire) Max. switching current 4 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; V _{switch} = V _S − 2V contact rating 125 mA, short-circuit resistant Accuracy of contacts ³ ≤ ± 0.35 % FSO Repeatability ≤ ± 0.1 % FSO Switching frequency max. 10 Hz Switching cycles > 100 x 10 ⁶ Delay time 0 100 sec ² max. 1 contact for 2-wire current signal with plug ISO 4400
Contact 2Standard1 PNP contactOptions2 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts 5 4 independent PNP contacts 6 10 V / 3-wire:(possible with M12x1, 8-pin for 4 20 mA/3-wire)Max. switching current Contact rating 125 mA, short-circuit resistant; $V_{switch} = V_S - 2V$ contact rating 125 mA, short-circuit resistantAccuracy of contacts 3 Repeatability Switching frequency Switching frequency $\leq \pm 0.1\%$ FSOSwitching frequencymax. 10 HzSwitching cycles $> 100 \times 10^6$ Delay time $0 \dots 100$ sec
Standard1 PNP contactOptions2 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts 5 4 independent PNP contacts 6 20 mA / 2- and 3-wire: 0 10 V / 3-wire:contact rating 125 mA, short-circuit resistant; $V_{switch} = V_S - 2V$ contact rating 125 mA, short-circuit resistantAccuracy of contacts 3 $\leq \pm 0.35 \%$ FSORepeatability $\leq \pm 0.1 \%$ FSOSwitching frequencymax. 10 HzSwitching cycles $> 100 \times 10^6$ Delay time0 100 sec
Options 2 independent PNP contacts 4 independent PNP contacts 4 independent PNP contacts (possible with M12x1, 8-pin for 4 20 mA/3-wire) Max. switching current 4 20 mA / 2- and 3-wire: contact rating 125 mA, short-circuit resistant; $V_{\text{switch}} = V_{\text{S}} - 2V$ contact rating 125 mA, short-circuit resistant Accuracy of contacts 3 $\leq \pm 0.35 \%$ FSO Repeatability $\leq \pm 0.1 \%$ FSO Switching frequency max. 10 Hz Switching cycles $> 100 \times 10^6$ Delay time 0 100 sec 2 max. 1 contact for 2-wire current signal with plug ISO 4400
4 independent PNP contacts (possible with M12x1, 8-pin for 4 20 mA/3-wire) Max. switching current $4 20 \text{ mA / } 2$ - and 3-wire: contact rating 125 mA, short-circuit resistant; $V_{\text{switch}} = V_{\text{S}} - 2V$ contact rating 125 mA, short-circuit resistant Accuracy of contacts $3 \le \pm 0.35 \% \text{ FSO}$ Repeatability $5 \pm 0.1 \% \text{ FSO}$ Switching frequency max. 10 Hz Switching cycles $5 \pm 0.0 \times 10^6$ Delay time $5 \pm 0.0 \times 10^6$ Delay time $5 \pm 0.0 \times 10^6$ Delay time $5 \pm 0.0 \times 10^6$
0 10 V / 3-wire: contact rating 125 mA, short-circuit resistant Accuracy of contacts 3 ≤ ± 0.35 % FSO Repeatability ≤ ± 0.1 % FSO Switching frequency max. 10 Hz Switching cycles > 100 x 10 6 Delay time 0 100 sec 2 max. 1 contact for 2-wire current signal with plug ISO 4400
Repeatability $\leq \pm 0.1 \%$ FSO Switching frequency max. 10 Hz Switching cycles $> 100 \times 10^6$ Delay time $0 \dots 100$ sec 2 max. 1 contact for 2-wire current signal with plug ISO 4400
Switching frequency max. 10 Hz Switching cycles > 100 x 10 ⁶ Delay time 0 100 sec 2 max. 1 contact for 2-wire current signal with plug ISO 4400
Switching cycles > 100 x 10 ⁶ Delay time 0 100 sec ² max. 1 contact for 2-wire current signal with plug ISO 4400
Delay time 0 100 sec ² max. 1 contact for 2-wire current signal with plug ISO 4400
² max. 1 contact for 2-wire current signal with plug ISO 4400
, , ,
Analogue output (optionally) / Supply
2-wire current signal $4 \dots 20 \text{ mA} / V_S = 13 \dots 36 V_{DC}$
permissible load: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ response time: < 10 ms
3-wire current signal $4 \dots 20 \text{ mA} / V_S = 19 \dots 30 V_{DC}$ adjustable (turn-down of span 1:5) ⁴
permissible load: $R_{max} = 500 \Omega$ response time: < 3 sec
3-wire voltage signal $0 \dots 10 \text{ V} / \text{V}_S = 15 \dots 36 \text{ V}_{DC}$ permissible load: $R_{min} = 10 \text{ k}\Omega$ response time: < 3 mse
Without analogue output $V_S = 15 36 V_{DC}$ Accuracy ³ $\leq \pm 0.35 \text{ %FSO IEC } 60770$
³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)
⁴ with turn-down of span the analogue signal is adjusted automatically to the new measuring range
Thermal effects (Offset and Span)
Thermal error $\leq \pm 0.25 \%$ FSO / 10 K
in compensated range -20 85 °C
Permissible temperatures
Permissible temperatures medium: -40 140 °C electronics / environment: -25 85 °C storage: -40 100 °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
Mechanical stability
Vibration 10 g RMS (25 2000 Hz)
Shock 100 g / 11 msec
Materials
Pressure port stainless steel 1.4542 (17-4 PH)
Housing stainless steel 1.4404 (316 L)
Display housing PA 6.6, polycarbonate
Seals (media wetted) none (welded version)
Diaphragm stainless steel 1.4542 (17-4 PH)
Media wetted parts pressure port, diaphragm
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 3-wire signal output voltage: approx. 7 mA + signal current
Ingress protection IP 65
Installation position any
Weight min. 200 g (depending on mechanical connection)
· · · · · · · · · · · · · · · · · · ·





¹ only available with pressure port G1/2" EN 837 ² with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

³ 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

⁴ standard: 2 m PVC cable without ventilation tube, others on request

⁵ According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of $R_P > 260 \text{ N/mm}^2$ in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!



DS 233

Differential Pressure Switch for Gases and Compressed Air in Compact Version

Silicon Sensor

accuracy according to IEC 60770: 0.35% FSO

Differential pressure

from 0 ... 6 mbar up to 0 ... 1000 mbar

Output signal

2-wire: 4 ... 20 mA

3-wire: 4 ... 20 mA

0 ... 10 V

Special characteristics

- aluminium housing
- LED display
- rotatable and configurable display module
- suited for non aggressive gases and compressed air

Optional versions

- ▶ 1 / 2 PNP contacts
- customer specific versions

The DS 233 is a differential pressure switch with digital display for non-aggressive gases and compressed air. Because of its compact and robust aluminium housing it is particularly suited for machine and plant engineering.

Basic element of the DS 233 is a piezoresistive silicon pressure sensor, which features high accuracy and excellent long term stability.

As standard the DS 233 offers a PNP contact and a rotatable display module with 4-digit LED display for representing the differential pressure. Optional up to two freely configurable contacts are available.

Preferred areas of use are



Plant and machine engineering



Heating and air conditioning







Input pressure range											
Nominal pressure P _N [mbar (over, differential pressure)	06	010	020	040	060	0100	0160	0250	0400	0600	01000
Nominal pressure P _N symmetric (differential pressure) [mbar	± 6	± 10	± 20	± 40	± 60	± 100	± 160	± 250	± 400	± 600	± 1000
Overpressure [mbar	100	100	200	350	350	1000	1000	1000	1000	3000	3000

Contact ¹					
Standard		1 PNP contact			
Option		2 independent PNP cont	acts		
Max. switching current		4 20 mA / 2- and 3-wir		mA, short-circuit resis	tant: Voulte = Vo - 2V
wax. ownorming our one		0 10 V / 3-wire:		mA, short-circuit resis	
Accuracy of contacts ²		P _N > 160 mbar:	≤ ± 0.35 % FSO	,	
7 toodiady of contacto		40 mbar ≤ P _N ≤ 160 mba			
		P _N < 40 mbar:	≤ ± 2 % FSO		
Repeatability		≤±0.1 % FSO			
Switching frequency		max. 10 Hz			
Switching cycles		> 100 x 10 ⁶			
Delay time		0 100 sec			
	ırrent signa	I with plug ISO 4400, no conta	act possible with 3-wire in cor	nbination with plug ISO 44	400
Analogue output (option			<u>.</u>	· · ·	
2-wire current signal	, ,,	4 20 mA / V _S = 13 3	36 V _{DC}		
2 Wile carrolle digital		permissible load: R _{max} = [re	esponse time: < 10 msec
3-wire current signal			30 V _{DC} adjustable (turn-do		
I Cancill orginal		permissible load: R _{max} = \$			esponse time: < 3 sec
3-wire voltage signal		0 10 V / V _S = 15 36			
o wire voltage digital		permissible load: R _{min} = 1		re	esponse time: < 3 msec
Without analogue output		V _S = 15 36 V _{DC}			
Accuracy ²		P _N > 160 mbar:	≤ ± 0.35 % FSO		
7 toodiady		$40 \text{ mbar} \le P_N \le 160 \text{ mba}$			
		$P_N < 40 \text{ mbar}$:	± 2 % FSO		
² accuracy according to IEC 6 ³ with turn-down of span the a		it point adjustment (non-linear	ity, hysteresis, repeatability)		
Performance	indiogae oi	griar is adjusted automatically	to the new measuring range		
Influence effects		supply: 0.05 % FSO	/ 10 V		
		load: 0.05 % FSO			
Long term stability		≤ ± 0.2 % FSO / year			
Thermal effects (Offset a	and Span) / Permissible temperat	ures		
Nominal pressure P _N	[mbar]	≤ 10	≤ 20	≤ 250	> 250
Tolerance band	[% FSO]	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 0.5
TC, average [% FS	O / 10 K]	± 0.3	± 0.25	± 0.15	± 0.08
in compensated range			0 0	60 °C	
Permissible temperatures		medium:	-25 125 °C		
•		electronics / environment	t: -25 85 °C		
		storage:	-40 100 °C		
Electrical protection					
Short-circuit protection		permanent			
Reverse polarity protection		no damage, but also no f	unction		
Electromagnetic compatib		emission and immunity a			
Mechanical stability					
Vibration		10 g RMS (20 2000 Hz	z) according to DIN E	N 60068-2-6	
Shock		100 g / 11 msec	according to DIN E		
Materials			<u> </u>		
Pressure port		aluminium, silver anodize	ed		
Housing		aluminium, silver anodise			
Display housing		PA 6.6, polycarbonate			
Seal		PUR			
Sensor			₂ O ₃ , Epoxy, stainless stee	اد	
Media wetted parts				<u> </u>	
welled parts		pressure port, housing, s	cai, 5011501		

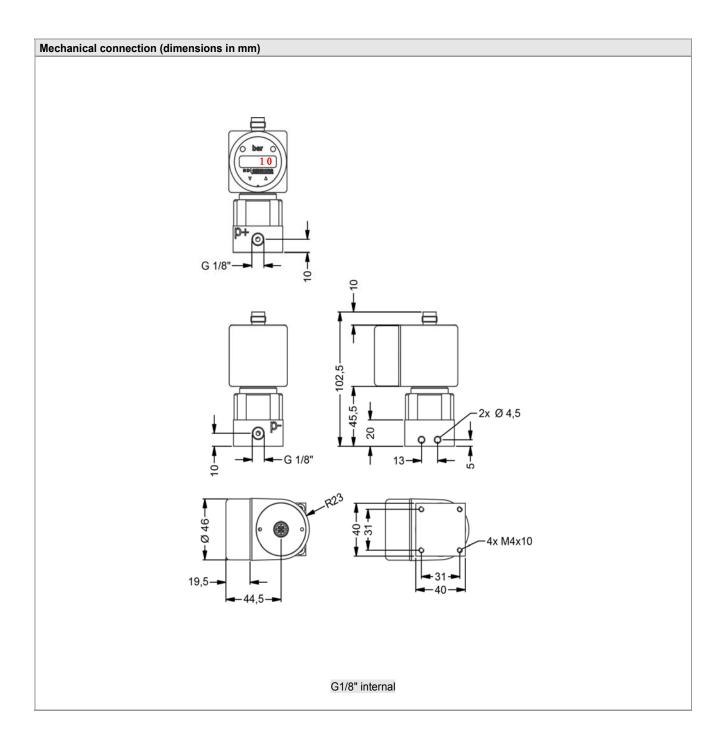
Miscellaneous				
Display	4-digit, red 7-segment-LE	ED display, digit height 7 n	nm, range of indication -19	999 +9999;
. ,		digital damping 0.3 30		,
		0.0 10 sec (programma		
Current consumption	2-wire signal output curre			
without contacts)	3-wire signal output curre	ent: approx. 45 mA + si	gnal current	
	3-wire signal output volta	ige: approx. 45 mA		
ngress protection	IP 65			
Veight	approx. 350 g			
Operational life	100 million load cycles			
CE-conformity	EMC Directive: 2014/30/	EU		
Pin configuration				
-	100.4400	M12x1 plastic	M12x1 metal	cable colours
Electrical connection	ISO 4400	(5-pin)	(5-pin)	(IEC 60757)
Supply +	1	1	1	wh (white)
Supply –	2	3	3	bn (brown)
Signal + (only 3-wire)	3	2	2	gn (green)
Contact 1	3	4	4	gy (grey)
Contact 2	-	5	5	pk (pink)
Shield	ground contact	via pressure port	plug housing/	gnye
	ground Contact	via pressure port	pressure port	(green-yellow)
Viring diagrams				
2-wire-system (current)		3-wire-system (c	urrent / voltage)	
, (,			3-7	
supply – contact 1 contact 2	A R _L	supply signal contains and cont	al + An) RL RL
Electrical connections (dimensio	ns in mm)			
standard	opti	ion		
Stariuaru	Opti	011		
5 0	<u> </u>	bar	30.5	
lo bar o		10	bar 1	PVC-cable Ø=4.9mm, PUR-cable Ø=5.7mm
		0	6	

⁴ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube

M12x1 (5-pin)

cable outlet with PVC-cable 4

ISO 4400



Ordering Code

	Ord	derir	ng d	cod	le D	DS	23	33										
DS 233	Ш]-□	Ц]-[] -	□ -	- 🔲	-			-Ц]-[]-[]	
Pressure differential pressure	3 3 5 3 6																	
gauge pressure Input [mbar]	3 3 6																	
6		0	0 6)						Т					Т	Т		
10 20			1 0 0															
40		0	4 0 0)														
60 100			6 0 0															
160		1	6 0 0	וכ														
250 400		2	5 0 0															
600		6	0 0 0															
1000		1	0 0															
-6 6 -10 10			0 0 0															
-20 20		S	0 2 0	ו											Т			
-40 40 -60 60		S	0 4 0															
-100 100		S	1 0 (ו														
-160 160 -250 250		S	1 6 0															
-230 230 -400 400		S	4 0 0)														
-600 600		S	6 0 0	0														
-1000 1000 customer		9	1 0 2 9 9 9	9														consult
Output																		
without 4 20 mA / 2-wire ¹					0													
0 10 V / 3-wire					3													
4 20 mA / 3-wire customer					7													consult
Contact					9													CONSUIT
1 contact						1												
2 contacts Accuracy			-		-	2												
standard for P _N > 160 mbar 0.35 %							3											
standard for 40 mbar \leq P _N \leq 160 mbar 1.0 % standard for P _N $<$ 40 mbar 2.0 %							8 G											
customer							9											consult
Electrical connection								N.		1								
plastic male plug M12x1 (5-pin) metal male plug M12x1 (5-pin)								N	1	1								
male and female plug ISO 4400 ¹								1 T	0	0								
cable outlet with PVC cable ² customer								T g	A 9	9								consult
Mechanical connection																		Joniouit
G1/8" internal thread Ø 6.6 x 11 (for flex. tubes Ø 6)											Q	0 0						
customer											9	0 0 0 0 9 9						consult
Seals PUR, bonded																		
Special version													•	3				
standard															0 0			
customer															9 9	9 9	1	consult

 $^{^1}$ max. 1 contact for 2-wire current signal with plug ISO 4400, no contact possible with 3-wire in combination with plug ISO 4400 2 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)



DS 400P

Intelligent Electronic Pressure Switch Stainless Steel

Pressure Ports and Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Contacts

1 or 2 independent PNP contacts, freely configurable

Analogue output

2-wire: 4 ... 20 mA 3-wire: 4 ... 20 mA others on request

Special characteristics

- indication of measured values on a 4-digit LED display
- rotable and configurable display module
- configurable contacts
 (switch on / switch off points, hysteresis/ window mode, switch on / switch off delay)
- ▶ hygienical version

Optional versions

IS-version

Ex ia = intrinsically safe for gases and dusts

customer specific versions

The electronic pressure switch DS 400P is the successful combination of

- intelligent pressure switch
- digital display

and has been developed for process industry; especially for food industry and pharmacy.

As standard the DS 400P offers a PNP contact and a rotable display module with 4-digit LED display.

Optional versions like e.g. an intrinsically safe version, max. two contacts and an analogue output complete the profile.

Preferred areas of use are



Food industry



Pharmacy

Material and test certificates

- material test report according to DIN EN 10204-3.1.
- specific test report according to DIN EN 10204-2.2.









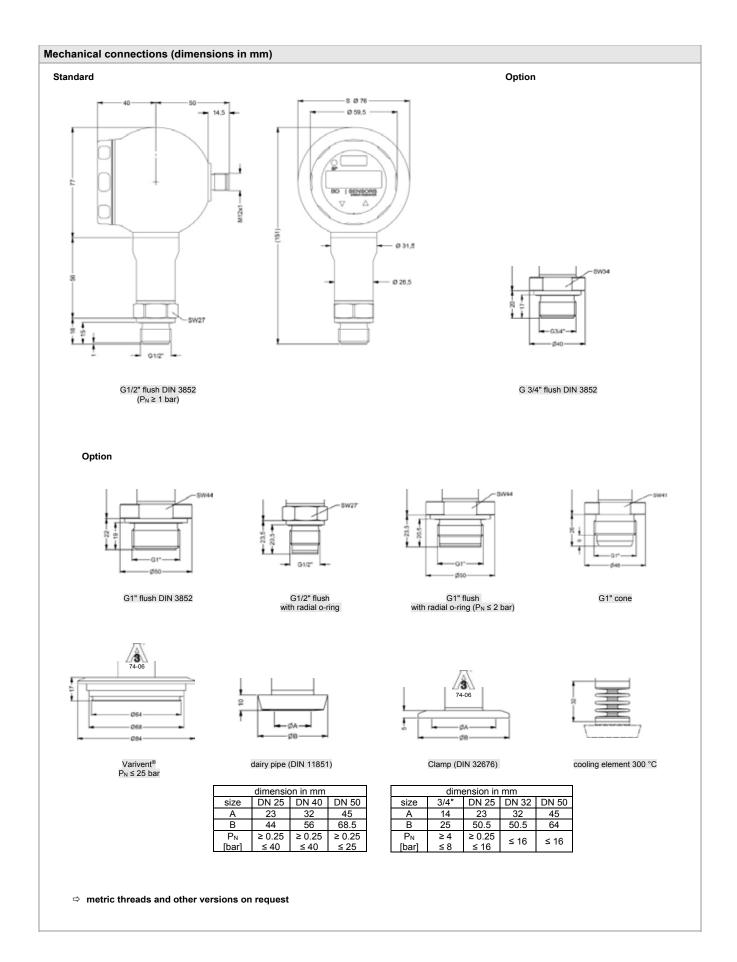




Input pressure range ¹

Naminal nassassas	[h = -3	4 2	0.4	0.40	0.05	0.4	0.0		4.0	2.5	A		40	40	0.5	40
Nominal pressure gauge	[bar]	-1 0	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.	[bar]	-	- 0 E	-	- 1	0.4	0.6	1 5	1.6	2.5	4	6	10	16	25	40
Overpressure	[bar]	5 7.5	0.5 1.5	1 1.5	1 1.5	3	5 7.5	7.5	10 15	10 15	20 25	40 50	40 50	80 120	80 120	105 210
Burst pressure ≥ Vacuum resistance	[bar]	7.5 P _N ≥ 1 ba						1.5	15						120	210
¹ consider the pressure resistance	o of fitti			iiiiteu v	acuun	1 16515	lance			г	N - 11	oar: on	reque	SI		
consider the pressure resistance	e or mun	ig and clain	ιρε													
Contact ²																
Number, type		standard	: 1 PN	IP cont	act			option	: 2 ind	epende	ent PN	P conta	acts			
Max. switching current		4 20 m	nA / 2-	and 3	wire:									istant;	V _{switch} =	V _S – 2V
		0 10 V									nA, sh	ort-circ	uit res	istant		
Accuracy of contacts ³		standard option:	nor	ninal p	ressur	e ≥ 0.4	bar:	$\leq \pm 0.3$ $\leq \pm 0.3$ $\leq \pm 0.2$	35 % F	SO						
Repeatability		≤ ± 0.1 %			icoouii	J = 0	r bai.	- ± 0.2	-5 /0 1	00						
Switching frequency		2-wire: m				1		3-wire	50 H	,						
Switching cycles		> 100 x 1		7112				O WIIC	. 00 112							
Delay time		0 100														
² with IS-protection max. 1 contact	ct nossi		000													
· · · · · · · · · · · · · · · · · · ·																
Analogue output (optionally	y) / Su		A / \ /	10		,										
2-wire current signal		4 20 m	ble loa	d: R _{max}	, = [(V _S	-V _{S n}	_{nin}) / 0.	02 A] <u>C</u>	2				respo	nse tin	ne: < 10) msec
2-wire current signal with		4 20 m) / 0	02 41 6					roon	noc 4:	no: - 10	macc
IS-protection		permissil 4 20 m								- of on	an 1.E	١.4	respo	nse tin	ne: < 10	msec
3-wire current signal		permissil	ble loa	d: R _{max}	_c = 500	Ω	-						respo	nse tin	ne: < 30) msec
3-wire voltage signal		0 10 \					ajustai	bie (tur	n-aowi	n or spa	an 1:5) -		naa tim) maaa
(on request)		permissil			= 10 K	.52							respo	nse tin	ne: < 30	msec
Without analogue output		V _S = 15.														
Accuracy ³		standard option:	no	minal p	oressur	e ≥ 0.4	4 bar:	$\leq \pm 0.8$ $\leq \pm 0.3$ $\leq \pm 0.2$	85 % F	so						
³ accuracy according to IEC 6077	70 – limi															
4 with turn-down of span the analog																
Thermal errors (offset and	span)	5/ Permiss	sible t	emper	atures											
Nominal pressure P _N	[bar]			0				<	0.40					≥ 0.4	10	
	FS0]			0.75					± 1.5					≤ ± 0.		
in compensated range	[°C]		-20	85				0	50					-20	85	
Permissible temperatures ⁶		medium:	-40	125	°C for	filling	fluid si	licone	oil							
						filling	fluid fo	od cor								
		electronic			ent:					85				40 1		
Permissible temperature med	lium	filling fluid						ressur							50 °C 7	
for cooling element 300°C		filling fluid						ressur						10 1	50 °C	
 ⁵ an optional cooling element can ⁶ max. temperature of the mediun ⁷ also for P_{abs} ≤ 1 bar 														of 50 °C		
										0		•				
Electrical protection																
•		permane	nt													
Short-circuit protection		permane		t also i	no func	tion										
Short-circuit protection Reverse polarity protection	•	no dama	ge, bu				o EN 4	31326								
Short-circuit protection Reverse polarity protection Electromagnetic compatibility	1		ge, bu				o EN (61326								
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability		no dama emission	ge, bu and ir	nmunit	у ассо	rding t										
Short-circuit protection Reverse polarity protection Electromagnetic compatibility		no dama	ge, bu and ir	nmunit	у ассо	rding t						': 10 g	RMS	(25	2000 H	z)
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability		no dama emission	ge, bu and ir 20 g R	nmunit MS (25	y acco 5 200	rding t		(others	except	G 1/2'	': 10 g				z)
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6		no dama emission G 1/2": 2	ge, bu and ir 20 g R	nmunit MS (25	y acco 5 200	rding t		(others	except	G 1/2'					z)
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids		no dama emission G 1/2": 2 G 1/2": 5	ge, bu and ir 20 g R 500 g /	nmunit MS (25	y acco 5 200	rding t		(others	except	G 1/2'					z)
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27)		no dama emission G 1/2": 2	ge, bu and ir 20 g R 500 g /	MS (25 1 mse	y acco	rding t	CFR1	78.357	others others	except	G 1/2' G 1/2'	·: 100	g / 1 m	nsec		
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional		no dama emission G 1/2": 2 G 1/2": 5 silicone c food com	ge, bu and ir 20 g R 500 g /	MS (25 1 mse	y acco	rding t	CFR1	78.357	others others	except	G 1/2' G 1/2'	·: 100	g / 1 m	isec	2000 H	
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials		no dama emission G 1/2": 2 G 1/2": 5 silicone c food com (Mobil Sh	ge, bu and ir 20 g R 500 g / bil npatible	MS (28 1 mse e oil ac bus 32;	y acco	rding to 21 ory Co	CFR1	78.357	others others	except	G 1/2' G 1/2'	·: 100	g / 1 m	others	2000 H	uest
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials Pressure port		no damar emission G 1/2": 2 G 1/2": 5 silicone con food com (Mobil Sh	ge, bu and ir 20 g R 500 g / bil hpatible HC Cib	MS (25 1 mse oil acous 32;	5 200 cc ccording Categ	rding t 00 Hz) g to 21 ory Co	CFR1	78.357	others others	except	G 1/2' G 1/2'	·: 100	g / 1 m	others	2000 H	uest
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials Pressure port Housing		no damar emission G 1/2": 2 G 1/2": 5 silicone of food com (Mobil Station Stat	ge, bu and ir 20 g R 500 g / bil npatible HC Cit steel steel	MS (25) 1 mse e oil ac ous 32; 1.4435	cording Categ	rding t 00 Hz) g to 21 ory Co	CFR1	78.357	others others	except	G 1/2' G 1/2'	·: 100	g / 1 m	others	2000 H	uest
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials Pressure port Housing Viewing glass		no damar emission G 1/2": 2 G 1/2": 5 silicone of food com (Mobil St stainless stainless laminated	ge, bu and ir 20 g R 500 g / bil apatible HC Cib steel steel d safe	MS (25) 1 mse e oil ac bus 32; 1.4435 1.4404 ty glas	coording Categ	g to 21 ory Co	CFR1 ode: H	78.357 1; NSF	others others 0 Regis	except except tration	G 1/2' G 1/2' No.: 1	41500)	g / 1 m	others	2000 H	uest
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials Pressure port Housing		no damaremission G 1/2": 2 G 1/2": 5 silicone of food com (Mobil Shatinless stainless laminated standard option:	ge, bu and ir 20 g R 500 g / bil apatible HC Cib steel steel d safe F	MS (28 1 1 mse oil acous 32; 1.4435 1.4404 ty glas; KM (rFKM (r	coording Categ	g to 21 ory Co	CFR1 ode: H	78.357 1; NSF	others others Regis	except except tration	G 1/2° G 1/2° No.: 1-	f: 100 41500)	g / 1 m	others others	2000 H	uest
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration (DIN EN 60068-2-6 Shock (DIN EN 60068-2-27) Filling fluids Standard Optional Materials Pressure port Housing Viewing glass		no damar emission G 1/2": 2 G 1/2": 5 silicone of food com (Mobil Sh stainless stainless laminated standard	ge, bu and ir and ir 20 g R 500 g / bil apatible HC Cib steel d safe F and dair	mmunitims (25 1 mse oil acous 32; 1.4435 1.4404 ty glass KM (rFKM (rry pipe	ccording Category (316 L (316 L secomn ecomn, Varive	g to 21 ory Co	CFR1 ode: H	78.357 1; NSF	others others Regis	except except tration	G 1/2° G 1/2° No.: 1-	f: 100 41500)	g / 1 m	others others	2000 H on requ	uest

Explosion protection (only for 4.	20 mA / 2-wire)	
Approval AX14-DS 400P	IBExU 06 ATEX 1050 X zone 0: II 1G Ex ia IIC T4 Ga (connector) / I zone 20: II 1D Ex ia IIIC T135 °C Da	II 1G Ex ia IIB T4 Ga (cable)
Safety technical maximum values	$U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C \approx 0 \text{ nF}, L_i \approx$	ε 0 μH
Max. switching current 8	70 mA	
Permissible temperatures for environment	0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar	
Connecting cables (by factory)	cable capacitance: signal line/shield also signal cable inductance: signal line/shield also signal	
⁸ the real switching current in the applica	tion depends on the power supply unit	
Miscellaneous		
Display	4-digit, 7-segment-LED display, visible range 37.2 range of indication -1999 +9999; accuracy 0.1 digital damping 0.3 30 sec (programmable); measured value update 0.0 10 sec (programn	% ± 1 digit;
Current consumption (without contacts)	2-wire signal output current: max. 25 mA 3-wire signal output current: approx. 30 mA + 3-wire signal output voltage: approx. 30 mA	signal current
Ingress protection	IP 67	
Installation position	any (standard calibration in a vertical position with differing installation position for $P_N \le 4$ bar have to	
Weight	min. 500 g (depending on mechanical connection	n)
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	
ATEX Directive	2014/34/EU	
Wiring diagrams		
2-wire-system (current) p supply +	3-wire-system (c	Surrent 7 Voltage)
Pin configuration	,	
Electrical connection	M12x1 metal (5-pin)	cable colours (IEC 60757)
Supply + Supply – Signal + (only 3-wire) Contact 1 Contact 2	1 3 2 4 5	wh (white) bn (brown) gn (green gy (grey) pk (pink)
Shield Designs 9	plug housing / pressure port	gnye (green-yellow)
Designs		Electrical connection (dimensions in mm)
		14,5 X X X X X X X X X
side display	45° display (others on request)	M12x1 (5-pin)
⁹ all designs in horizontal rotatable housi	ng as standard	
	J	



DS 400P

Ordering Code

DS 400P				i	0	rd	eri	ng	C	ode	e D	S 4	100	0P		i	i	i	i	i	i	i	i	
Impact	DS 400P	П	П-	П	Π	П	-Г	П	- -	1-Г	1-Г	1-Г	Т	П	-П	П	1 -[٦.	- 🗆	<u> I-Г</u>	1-Г	T		
Input																								
Input		7 A	5 6																					
0.16	Input [bar]			1 (0	0																		
0.40	0.16			1 6	0	0																		
1.0				4 (0																			
1.6				6 0	0																			
A	1.6			1 6	0	1																		
Contact Contact Consult Con				4 (0																			
16				6 0	0	1																		
Accuracy Sandard for Pt. 2 O. 4 Dar Sandard for Pt. 3 O. 5 S. 5	16			1 6	0	2																		
Design Statiness steel but housing Statiness steel but housi				4 (0 0	2																		
Stainless steel ball housing (elice display) K H				X 1	0	2																		consult
Stainless Stell ball housing (45° display)	Design																							99119411
Analogue output Without 4 20 mA / 2-wire 0 10 V / 3-wire, adjustable 4 20 mA / 2-wire 1 consult 1 contact 2 contacts 1 contact 2 contacts 3 departments 4 consult	(side display)						K	Н																
Analogue output 4 20 m A/ 2-wire 0 10 V / 3-wire, adjustable 3							K	4																consult
4 20 mA / 2-wire 1	Analogue output								_															
Intrinsic safety 4 20 mA / 2-wire 2	4 20 mA / 2-wire								1															
Intrinsic safety 4 20 mA / 2-wire 2									3 7															consult
Contact	intrinsic safety 4 20 mA / 2-wire 2								Ε															
Accuracy Standard for P _N ≥ 0.4 bar		-	-						9															consuit
Accuracy Standard for P _N ≥ 0.4 bar 0.35 % 5 5 5 5 5 5 5 5 5										1														
standard for P _N ≥ 0.4 bar 0.5 % option for P _N ≥ 0.4 bar 0.25 % 2 2	Accuracy																							
option for P _N ≥ 0.4 bar											5													
Consult											2													consult
Consult Consult Consult Consult Consult Consult	Electrical connection																							COTISUIT
G1/2" with flush welded diaphragm (DIN 3852) 3	customer											5	9	9										consult
Welded diaphragm (DIN 3852) 3																								
welded diaphragm (DIN 3852) Z 3 0 G1" with flush Z 3 1 welded diaphragm (DIN 3852) Z 3 1 G1" DIN 3852 with rad. o-ring and flush diaphragm 4 Z 5 7 G1/2" DIN 3852 with rad. o-ring and flush diaphragm 4 Z 6 1 G1"cone K 3 1 Clamp DN 25 (DIN 32676) / 3A C 6 1 Clamp DN 32 (DIN 32676) / 3A C 6 2 Clamp DN 50 (DIN 32676) / 3A C 6 3 Clamp DN 4" (DIN 32676) / 3A C 6 9 dairy pipe DN 40 (DIN 11851) 5 M 7 5 dairy pipe DN 50 (DIN 11851) 5 M 7 5 dairy pipe DN 50 (DIN 11851) 5 M 7 6 Varivent® DN 40/50 / 3A P 4 1 customer 9 9 consult Seals for clamp, dairy pipe, Varivent®: none 0 1 1 for clamp dairy pipe, Varivent®: none 0 0 1 1	welded diaphragm (DIN 3852) 3														Z									
Welded diaphragm (DIN 3852) S T	welded diaphragm (DIN 3852)														Z	3 0)							
G1" DIN 3852 with rad. o-ring and flush diaphragm 4 G1/2" DIN 3852 with rad. o-ring and flush diaphragm Z 6 1 G1" cone K 3 1 Clamp DN 25 (DIN 32676) / 3A Clamp DN 32 (DIN 32676) / 3A Clamp DN 50 (DIN 32676) / 3A Clamp DN 50 (DIN 32676) / 3A Clamp DN 50 (DIN 1851) 5 Gairy pipe DN 25 (DIN 1851) 5 Gairy pipe DN 40 (DIN 11851) 5 Gairy pipe DN 40 (DIN 11851) 5 Gairy pipe DN 40 (DIN 11851) 5 Gairy pipe DN 40/50 / 3A Customer 9 9 9 0 consult Seals For clamp, dairy pipe, Varivenf®: none for inch thread: FFKM FFKM Customer 9 0 0 consult Customer 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0															Z	3 1								
G1/2" DIN 3852 with rad. o-ring and flush diaphragm	G1" DIN 3852 with rad. o-ring														Z	5 7								
Clamp DN 25 (DIN 32676) / 3A	G1/2" DIN 3852 with rad. o-ring														Z	6 1								
Clamp DN 32 (DIN 32676) / 3A Clamp DN 50 (DIN 32676) / 3A Clamp JM 7																								
Varivent® DN 40/50 / 3A															C	6 1								
Varivent® DN 40/50 / 3A	Clamp DN 50 (DIN 32676) / 3A														C	6 3								
Varivent® DN 40/50 / 3A	dairy nine DN 25 (DIN 11851) 5														M	7 3								
Varivent® DN 40/50 / 3A	dairy pipe DN 40 (DIN 11851) ⁵ dairy pipe DN 50 (DIN 11851) ⁵														M M	7 5	i							
Diaphragm stainless steel 1.4435 (316L) 1 customer 9 consult Seals for clamp, dairy pipe, Varivenf [®] : none for inch thread: 0 1	Varivent® DN 40/50 / 3A														Р	4 1								
stainless steel 1.4435 (316L) 1 consult Customer 9 consult Seals 5 6 for clamp, dairy pipe, Varivent [®] : none for inch thread: 0 1 FFKM 1 1 FFKM 7 consult customer 9 consult															9	9 9								consult
Seals for clamp, dairy pipe, Varivenf®: none for inch thread: FKM 1 FFKM 7 consult customer 9 consult	stainless steel 1.4435 (316L)																							consult
for inch thread: FKM 1	Seals																	<i>3</i>						CONSUIT
FFKM 7 consult customer 9 consult																								
	FFKM																		7					
	Filling Fluids																		3					Consult
silicone oil 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1																				2				
customer 9 consult Special version																								consult
standard 0 0 0	standard																				(0	0	
with cooling element up to 300°C / 3A 2 0 0 0 customer 9 9 9 consult																					2	9	9	consult

¹ absolute pressure possible from 1 bar ² with Ex version max. 1 contact is possible with Ex version max. 1 contact is possible of nominal pressure ranges $P_N \ge 1$ bar ⁴ only possible for nominal pressure ranges $P_N \le 2$ bar ⁵ The cup nut for dairy pipe has to be mounted by production of pressure transmitter. The cup nut has to be ordered as separate position. Varivent ⁵ is a brand name of GEA Tuchenhagen GmbH



DS 200P

Electronic Pressure Switch

Pressure Ports and Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 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
- rotable and configurable display module
- configurable contacts (switch on / switch off points, hysteresis / window mode, switch on / switch off delay)

Optional versions

- IS-version Ex ia = intrinsically safe for gases
- customer specific versions

The electronic pressure switch DS 200P is the successful combination of

- intelligent pressure switch
- digital display

and is suitable for the usage with viscous and pasty media.

As standard the DS 200P 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



Food industry



Pharmacy











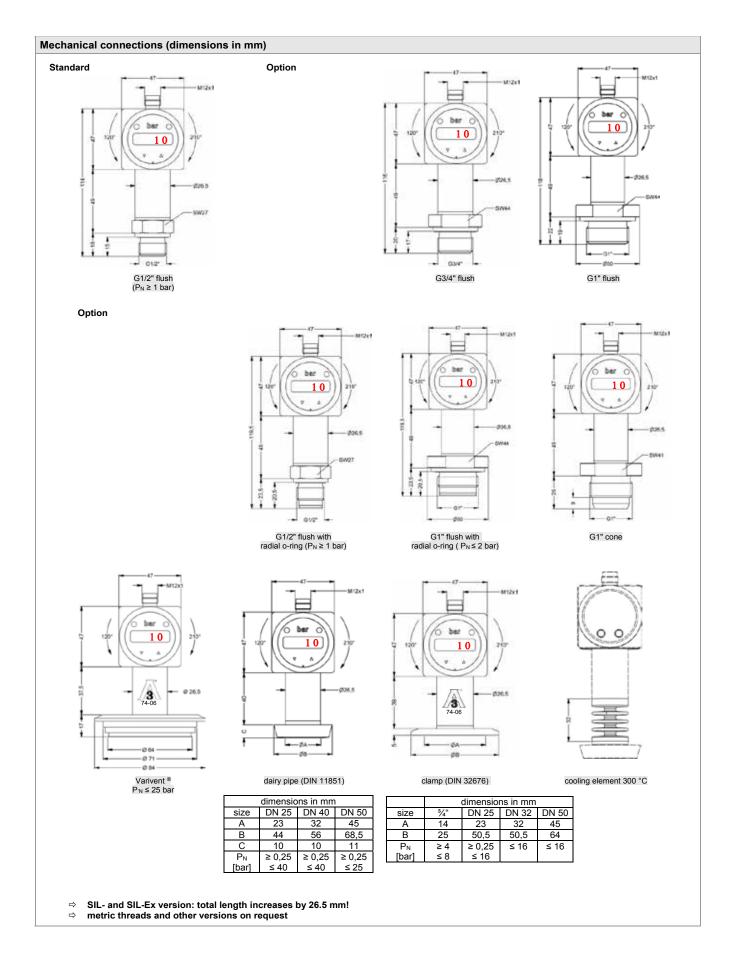


Input pressure range¹

Nominal pressure gauge	[har]	-1 0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.	[bar]		-	-	-	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Overpressure	[bar]		0.5	1	1	2	5	5	10	10	20	40	40	80	80	105
Burst pressure ≥	[bar]		1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	210
Vacuum resistance	[bai]	$P_N \ge 1 b$						1.5	15		< 1 bar			120	120	210
¹ consider the pressure resistance	e of fit			iiiileu v	acuuii	1103131	ance			ı N	\ I bai	. OII ICC	_l ucsi			
Contact ²																
Standard		1 PNP co														
Options		2 indepe														
		4 indepe	ndent l	PNP co	ntacts						1 20	mA/3-w	/ire;			
Many avritalaine avenuent		4 00	- 1 / 2				10 V/3				:4:-4		_ \	, 0),		
Max. switching current		4 20 n			wire:						it resist		witch = \	/ _S - 2V		
Accuracy of contacts ³		0 10 V standard:			or. < 1						it resist ≤ ± 0.3		20			
Accuracy of contacts		option:				0.25 %			INEO	.+ Dai.	= 1 0.0)J /0 I C	50			
Repeatability		≤± 0.1 %		_ 0.15	u	0.20 /	0.00									
Switching frequency		max. 10														
Switching cycles		> 100 x														
Delay time		0 100														
² max. 1 contact for 2-wire curren	nt sians			nn as w	ell as 2.	wire cur	rent siai	nal with	IS-prote	ction						
no contact possible with 3-wire						wire cur	rent sigi	iai witii	13-prote	Clion						
³ accuracy according to IEC 6077						hysteres	sis, repe	atability)							
Analogue output (optionall	ly) / S	upply														
2-wire current signal		4 20 n	nA / V	s = 13 .	36 V	DC										
· ·		permissil) / 0.02	A] Ω				respon	se time	e: < 10	msec	
2-wire current signal with		4 20 n														
IS-protection		permissil	ble loa	d: R _{max}	= [(V _S	– V _{S min}) / 0.02	Α] Ω				respon	se time	e: < 10	msec	
3-wire current signal		4 20 n	nA / V	s = 19 .	30 V	_{DC} adju	stable (turn-do	own of	span 1	:5) 4					
		permissi	ble loa	d: R _{max}	= 500	Ω						respon	se time	e: < 0.5	sec	
3-wire voltage signal		0 10 \	/ / V _s	= 15	36 V _D	pe	rmissib	le load	: R _{min} =	: 10 kΩ	!	respon	se time	e: < 10	msec	
Without analogue output		$V_{\rm S} = 15$.														
Accuracy ³		standard							$P_N \ge 0$.4 bar:	$\leq \pm 0.3$	35 % F	SO			
		option:				± 0.25 °										
4 with turn-down of span the anal							measur	ing rang	е							
Thermal errors (Offset and) */ Perm			eratur	es		. 0. 10						40		
	[bar]		-1.					< 0.40					≥ 0.			
	-SO]		≤±(≤ ± 1.5		-			≤±0 -20			
in compensated range	[°C]	medium:	-20 .	65		-40 [′]				oilioon	o oil		-20	. 00		
Pormiccipio tomporaturos 9		medium.									e on ompatik	ale oil				
Permissible temperatures ⁶								101 111111	ig naid	1000 0	ompatik) i O O II				
rermissible temperatures °		electroni	cs / en	vironm	71 IL.	-4 0	85 6									
rermissible temperatures °		electronic storage:	cs / en	vironm		-40 -40 ′	85 °C 100 °C									
·	dium	storage:				-40 ´		ssure:	-40	300 °C	; ,	vacuum	ո։ -40	150 °	C ⁷	
Permissible temperatures ° Permissible temperature med for cooling element 300°C	dium	storage:	d silico	ne oil		-40 °	100 °C							150 ° 150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car	n influe	storage: filling flui filling flui	d silico d food	ne oil compa	tible oi	-40 o	100 °C overpre overpre pending	ssure:	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature met for cooling element 300°C 5 an optional cooling element car 6 max. temperature of the medium	n influe	storage: filling flui filling flui	d silico d food	ne oil compa	tible oi	-40 o	100 °C overpre overpre pending	ssure:	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{ebs} ≤ 1 bar	n influe	storage: filling flui filling flui	d silico d food	ne oil compa	tible oi	-40 o	100 °C overpre overpre pending	ssure:	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the medium ⁷ also for P _{ebs} ≤ 1 bar Electrical protection	n influe	storage: filling flui filling flui nce therma ominal pre	d silico d food al effect ssure g	ne oil compa	tible oi	-40 o	100 °C overpre overpre pending	ssure:	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the medium ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection	n influe	storage: filling flui filling flui nce therma ominal pre	d silico d food al effect ssure g	one oil compa s for offs auge > 0	tible oi set and) bar: 1:	-40 o	100 °C overpre overpre pending	ssure:	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the medium ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection	n influe m for n	storage: filling flui filling flui filling flui nce therma ominal pre permane no dama	d silico d food al effect ssure ga ent ge, but	one oil compa s for offs auge > 0	tible oi set and bar: 1:	-40 (I (span de 50 °C fo.	100 °C overpre overpre pending r 60 min	essure: on insta utes wit	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the medium ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility	n influe m for n	storage: filling flui filling flui nce therma ominal pre	d silico d food al effect ssure ga ent ge, but	one oil compa s for offs auge > 0	tible oi set and bar: 1:	-40 (I (span de 50 °C fo.	100 °C overpre overpre pending r 60 min	essure: on insta utes wit	-10	250 °C	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element care max. temperature of the medium also for Pabs ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability	n influe m for n	storage: filling flui filling flui nce therma ominal pre permane no dama emission	d silico d food al effect ssure ga ent ge, but	one oil compa s for offs auge > o	tible oi set and o bar: 1.	-40 (I span de 50 °C for	100 °C Diverpre Diverpre pending r 60 min	essure: on insta utes with	-10 allation p h a max	250 °C position . enviro	and fillin	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car 6 max. temperature of the mediun 7 also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration	n influe m for n	storage: filling flui filling flui nce therma ominal pre permane no dama emission 5 g RMS	d silico d food al effect ssure ga ent ge, but and in	t also n	tible oi set and o bar: 1.	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	100 °C overpre overpre pending r 60 min EN 61	on instautes with	-10 allation p h a max	250 °C position . enviro	and fillin nmental	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car 6 max. temperature of the mediun 7 also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock	n influe m for n	storage: filling flui filling flui nce therma ominal pre permane no dama emission	d silico d food al effect ssure ga ent ge, but and in	t also n	tible oi set and o bar: 1.	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	100 °C Diverpre Diverpre pending r 60 min	on instautes with	-10 allation p h a max	250 °C position . enviro	and fillin nmental	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{ebs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids	n influe m for n	storage: filling flui filling flui nce therma ominal pre permane no dama emission 5 g RMS 100 g / 1	d silico d food al effect ssure ga ent ge, but a and in 5 (25	t also n	tible oi set and o bar: 1.	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	100 °C overpre overpre pending r 60 min EN 61	on instautes with	-10 allation p h a max	250 °C position . enviro	and fillin nmental	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of	d silico d food al effect ssure ga ent ge, but and in 5 (25 1 msec	t also nomunity	tible oi set and o bar: 1: o funct y accor	-40 (I)	100 °C overpre overpre pending r 60 min EN 61 accord	essure: on instautes with 326 ing to I	-10 allation p h a max	250 °C position . enviro	and fillin nmental	vacuum a condit	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of	d silico d food al effect ssure ga ent ge, but and in a (25 1 msec	t also nomunity	o function of the continue con	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	to overpre overpre pending r 60 min EN 61 accord accord	on instautes with 326 sing to Eing to E 3.3570	-10 hallation ph a max	250 °C position . enviro 60068	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of	d silico d food al effect ssure ga ent ge, but and in a (25 1 msec	t also nomunity	o function of the continue con	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	to overpre overpre pending r 60 min EN 61 accord accord	on instautes with 326 sing to Eing to E 3.3570	-10 hallation ph a max	250 °C position . enviro 60068	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediunt also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI	d silico d food al effect ssure ge ent ge, but and in 1 msec bil npatible HC Cib	t also nomunity 2000 I coil acous 32;	o function of func	-40 (I span de 50 °C for ding to	en cord	ssure: on instautes with 326 ing to I ing to I 8.3570 NSF R	-10 allation ph a max DIN EN DIN EN	250 °C position . enviro 60068	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature med for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediun ⁷ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of	d silico d food al effect ssure general ent ge, but and in 1 msec oil npatible HC Cib	t also nomunity 2000 I coil acous 32;	o functory according Categor (316 L	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	overpre overpre pending r 60 min EN 61 accord	ssure: on instautes with 326 ing to I ing to I 8.3570 NSF R	-10 allation ph a max DIN EN DIN EN	250 °C position . enviro 60068	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature met for cooling element 300°C 5 an optional cooling element car max. temperature of the medium also for Pebs ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port Housing	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless	d silico d food al effect ssure ge ent ge, but and in 1 msec oil npatible HC Cib	t also nomunity 2000 I coil actions 32; 1.4435	o function of func	-40 (IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	en cord	ssure: on instautes with 326 ing to I ing to I 8.3570 NSF R	-10 allation ph a max DIN EN DIN EN	250 °C position . enviro 60068	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediunt also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port	n influe m for n	storage: filling flui filling flui filling flui fince therma ominal pre permane no dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless stainless	d silico d food al effects ssure ga ent ge, but and in 5 (25 1 msec bil npatible HC Cib	t also nomunity 2000 I compass for office of the control of the	o function of func	-40 (I (span de 50 °C for tion rding to ty to 210 by to 210 by to 200 cory Coo	100 °C overpre overpre pending r 60 min EN 61 accord accord CFR178 le: H1; others	assure: on insta utes with 326 ing to I ing to I NSF R on requ	-10 allation j h a max DIN EN DIN EN egistra	250 °C cosition cosit	and fillin nmental 3-2-6 3-2-27	vacuum g condii tempera	n: -10	150 °		
Permissible temperature met for cooling element 300°C 5 an optional cooling element car max. temperature of the medium also for Pabs ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port Housing Display housing	n influe m for n	storage: filling flui food dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless stainless PA 6.6, F standard option:	d silico d food al effect ssure ge ent ge, but and in 1 msec bil npatible HC Cib steel steel	t also nomunity 2000 I cours 32; 1.4435 1.4404 bonate KM (rec	o function of func	-40 (I span de sp	en ed to the state of the state	ssure: on insta utes wit. 326 ing to [ing to [NSF R on required]	-10 allation in a max DIN ENDIN	250 °C cosition . enviro 60068 1 60068 tion No	and fillinnmental	vacuum g condii tempere	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediunt also for P _{ebs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port Housing Display housing	n influe m for n	storage: filling flui for dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless stainless PA 6.6, F standard	d silico d food al effect ssure ge ent ge, but and in 1 msec bil npatible HC Cib steel steel Polycar FF airy pig	t also nomunity 2000 I cours 32; 1.4435 1.4404 bonate KM (rece, Variety)	o function of func	-40 (I span de sp	en ed to the control of the control	ssure: on insta utes wit. 326 ing to [ing to [NSF R on required]	-10 allation in a max DIN ENDIN	250 °C cosition . enviro 60068 1 60068 tion No	and fillinnmental	vacuum g condii tempere	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car ⁶ max. temperature of the mediunt also for P _{ebs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port Housing Display housing	n influe m for n	storage: filling flui food dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless stainless PA 6.6, F standard option:	d silico d food al effect ssure ge ent ge, but and in 5 (25 1 msec bil npatible HC Cib steel Steel Polycar F F Fairy pig	t also nomunity 2000 I cous 32; 1.4435 1.4404 bonates KM (rece, Varianless	o function of func	-40 (I span de Sp	EN 61 accord accord CFR178 for med for	assure: on insta utes with 326 ing to I ing to I on required ing to I ing to I ing to I ing to I	egistra uest	250 °C cosition conviro 60068 60068 tion No	and fillinnmental	vacuum g condii tempere	n: -10	150 °		
Permissible temperature met for cooling element 300°C ⁵ an optional cooling element car max. temperature of the mediunt also for Pabs ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock Filling fluids Standard Options Materials Pressure port Housing Display housing Seals (media wetted)	n influe m for n	storage: filling flui for dama emission 5 g RMS 100 g / 1 silicone of food com (Mobil SI stainless stainless PA 6.6, F standard option: clamp, di	d silico d food al effect ssure ge ent ge, but and in 1 msec bil npatible HC Cib steel Steel Polycar FF airy pig:	t also nomunity 2000 I cours 32; 1.4435 1.4404 bonates M (received as telloy	o function of func	-40 (I span de So °C fo. etion ding to 210 ory Coo))) ended 1 ended 1 withou .4435 (6 (2.48	EN 61 accord accord CFR178 for med for	assure: on insta utes with 326 ing to I ing to I on required ing to I ing to I ing to I ing to I	egistra uest	250 °C cosition conviro 60068 60068 tion No	and fillinnmental	vacuum g condii tempere	n: -10	150 °		

Explosion protection	only for 4	20 mA / 2-wir	re)								
Approval AX14-DS 20	• •	IBExU06ATEX10									
Safety technical maxir	mum	İ	zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)								
values			J _i = 28 V, I _i = 93 mA, P _i = 660 mW, C ≈ 0 nF, L _i ≈ 0 μH								
Max. switching curren		70 mA	0 mA								
Permissible temperatu environment		-25 70 °C									
Connecting cables (by		cable inductance	able capacitance: signal line/shield also signal line/signal line: 100 pF/m able inductance: signal line/shield also signal line/signal line: 1 µH/m								
⁸ the real switching curre	nt in the appli	cation depends on th	he power supply unit	<u> </u>							
Miscellaneous											
Display		accuracy 0.1 % :	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 (without contacts)		2-wire signal out 3-wire signal out 3-wire signal out	put current: ap	ax. 25 mA pprox. 45 mA + siç pprox. 45 mA	gnal current						
Ingress protection		IP 65		.p. 07 10 11#1							
Installation position		any (standard ca			he pressure port one specified in the						
Weight		approx. 160 2			.,	,					
Operational life		100 million load									
CE-conformity		EMC Directive: 2	2014/30/EU								
ATEX Directive		2014/34/EU									
Wiring diagrams											
2-wire-system (current)	^			3-wire-system (cur	rent / voltage)						
p supply + supply - contact 1 contact 2		P									
	Ā			Contact 4	Ā						
Pin configuration		I	M12x1	M12x1	I	Pindor	I				
Electrical connection		M12x1 plastic (5-pin)	metal (5-pin)	plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)				
	Supply +	1	1	1	1	1	wh (white)				
	Supply –	3	3	3	2	3	bn (brown)				
Signal + (o	,	2	2	2	3	2	gn (green)				
	Contact 1	4	4	4	3	4	gy (grey)				
	Contact 2	5	5	5	-	5	pk (pink)				
	Contact 3 Contact 4	-	-	6 7	-	-	bu (blue) rd (red)				
	Shield	via pressure port	plug housing/ pressure port	via pressure port	ground con- tact	plug housing/ pressure port	gnye (green- yellow)				
Electrical connection	ns (dimensi	ons in mm)									
P (1)		0	o bar co		Der 3	Ø = c	e outlet PVC 4.9mm e outlet PUR 5.7mm				
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		() () () () () () () () () ()	(((() () () () () () () () ((e ₂							
M12x1 (5-pin)		M12x1 (8-pin)	ISO 4400	Binder seri	ies 723 (5-polig)	cable outlet 7					
⁷ different cable types and			mperature depends sible temperature: -								

DS 200P



Ordering Code

	-	Orde	ering	code	e DS	3 2	00F)						
DS 200P			ПГ	7 🗆	T	П	П	┰		П				
Pressure		-	-[-]-[-	H	- 니			- Ц				
gauge	7 8 5					П		_			_			
absolute [bar]	7 8 6					ш								
0.10		1 0 0 0				П								
0.16 0.25		1 0 0 0 1 6 0 0 2 5 0 0 4 0 0 0 6 0 0 0												
0.40		4 0 0 0												
0.60 1.0		6 0 0 0 1												
1.6		1 6 0 1												
2.5 4.0		2 5 0 1 4 0 0 1												
6.0		6 0 0 1												
10 16		1 0 0 2 1 6 0 2												
25 40		2 5 0 2												
-1 0		X 1 0 2												
Analogue output customer		9 9 9 9												consult
without			0			П								
4 20 mA / 2-wire 0 10 V / 3-wire			1											
4 20 mA / 3-wire, adjustable			7											
Intrinsic safety 4 20 mA / 2-wire 1 customer			9											consult
Contact			9											CONSUIL
1 contact ¹ 2 contacts ¹	, 2			1										
4 contacts ³				2 4										
Accuracy standard for $P_N > 0.4$ bar 0.35 %				3										
standard for $P_N \le 0.4$ bar 0.5%				5										
option for $P_N \ge 0.4$ bar 0.25 % customer				2 9										consult
Electrical connection				J										Consult
Male plug M12x1 (5-pin) / plastic Male plug M12x1 (8-pin) / plastic					N (
Male plug M12x1 (5-pin) / metal					N ·	1 1								
Male and female plug ISO 4400 ² Male plug Binder series 723 (5-pin)					1 (0 0								
Cable outlet incl. cable 4					T	0								conquit
Mechanical connection	_	_	_	-	9 8	9 9						_		consult
G1/2" with flush welded diaphragm (DIN 3852) for $p_n \ge 1$ bar							Z	0 0						
G3/4" with flush							Z	3 0						
welded diaphragm (DIN 3852) G1" with flush														
welded diaphragm (DIN 3852)							Z	3 1						
G1" DIN 3852 with rad. o-ring and flush diaphragm (for $p_n \le 2$ bar)							Z	5 7						
G1/2" DIN 3852 with rad. o-ring							z	6 1						
and flush diaphragm (for $p_n \ge 1$ bar) G 1" cone								3 1 6 1						
Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A							C	6 2						
Clamp DN 50 / 2" (DIN 32676) / 3A							C	6 3 6 9 7 3 7 5						
Clamp 3/4" (DIN 32676) / 3A Dairy pipe DN 25 (DIN 11851) ⁵							C M	6 9						
Dairy pipe DN 40 (DIN 11851) 5							М	7 5						
Dairy pipe DN 50 (DIN 11851) ⁵ Varivent [®] DN 40/50 / 3A							M P	4 1						
customer							9	7 6 4 1 9 9						consult
Diaphragm Stainless steel 1.4435 (316L)									1					
Tantalum									Т					consult
Hastelloy [®] C-276 (2.4819) customer									H 9					consult
Seals for clamp, dairy pipe, Varivent [®] : without														
for inch thread: FKM										0				
FFKM customer										7				aana, lu
Filling Fluids										9				consult
Silicone oil food grade oil (FDA) / 3A											1			
customer											2 9			consult
Special version standard												0	0 0	
with cooling element up to 300°C / 3A												2	0 0 9 9	
customer												9	9 9	consult

with Ex version max. 1 contact is possible
with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible
contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request
can be standard: 2 m PVC cable without ventilation tube (permissible temperature: 5 m. 70 °C), others on request
The cup rut for dairy pipe has to be mounted by production of pressure transmitter. The cup rut has to be ordered as separate position.
Varivent® is a brand name of GEA Tuchenhagen GmbH, Hastelloy® is a brand name of Haynes International Inc.



DS 201P

Electronic Pressure Switch

Pressure Port with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 60 bar up to 400 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-versionEx ia = intrinsically safe for gases
- cooling element up to 300 °C
- customer specific versions

The electronic pressure switch DS 201P is the successful combination of

- intelligent pressure switch
- digital display

and is designed for universal applications in the mechanical engineering and other industries where a flush stainless steel diaphragm is necessary. This can be the case, for example, with higher viscous or slightly contaminated fluids. For usage with higher media temperature optionally a cooling element up to 300 °C is available.

Preferred areas of use are



Plant and machine engineering



Food industry

Preferred used for



Viscous and pasty media









DS 201P

Technical Data

Input pressure ranges						
Nominal pressure gauge/abs.	[bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	120	250	500	500	650

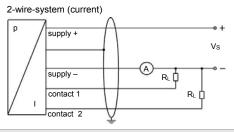
Contact ¹		
Standard	1 PNP contact	
Options	2 independent PNP contacts	
Ориона	4 independent PNP contacts	(possible with M12x1, 8-pin for 4 20 mA/3-wire; 0 10 V/3-wire on request)
Max. switching current	4 20 mA / 2- and 3-wire: 0 10 V / 3-Leiter:	contact rating 125 mA, short-circuit resistant; V_{switch} = $V_{\text{S}}-2V$ contact rating 125 mA, short-circuit resistant
Accuracy of contacts ²	≤ ± 0.5 % FSO	
Repeatability	≤ ± 0.2 % FSO	
Switching frequency	max. 10 Hz	
Switching cycles	> 100 x 10 ⁶	
Delay time	0 100 sec	
¹ max. 1 contact for 2-wire current signal v with plug ISO 4400 ² accuracy according to IEC 60770 – limit	, -	current signal with Ex-protection no contact possible with 3-wire in combination eresis, repeatability)
Analogue output (optionally) / Sup	ply	
2-wire current signal	4 20 mA / V _S = 13 36 V _E	oc
, and the second	permissible load: R _{max} = [(V _S -	$-V_{S min}$) / 0.02 A] Ω response time: < 10 msec
2-wire current signal with	4 20 mA / V _S = 15 28 V _E	OC .
Ex-protection	permissible load: $R_{max} = [(V_S - V_S)]$	$-V_{S min}$) / 0.02 A] Ω response time: < 10 msec
3-wire current signal	4 20 mA / V _S = 19 30 V _E	c adjustable (turn-down of span max. 1:5) 3
	permissible load: R _{max} = 500 g	Ω response time: < 0.5 sec
3-wire voltage signal	0 10 V / V _S = 15 36 V _{DC}	
	permissible load: R _{min} = 10 kΩ	2 response time: < 10 msec
Without analogue output	V _S = 15 36 V _{DC}	
Accuracy ²	≤ ± 0.5 % FSO	
³ with turn-down of span the analogue sign	nal is adjusted automatically to the r	ew measuring range
Thermal error (offset and span) 4 /	Permissible temperatures	
Thermal error	≤±0.2 % FSO / 10 K	
in compensated range	-20 85°C	
Permissible temperatures ⁵	medium: electronics / environment:	-40 125 °C for filling fluid silicone oil -10 125 °C for filling fluid food compatible oil -40 85 °C
	storage:	-40 100 °C
Permissible temperature	filling fluid silicone oil	overpressure: -40 300 °C vacuum: -40 150 °C
medium for cooling element 300°C	filling fluid food compatible oil	overpressure: -10 250 °C vacuum: -10 150 °C
		depending on installation position and filling conditions outes with a max. environmental temperature of 50°
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no funct	on
Electromagnetic compatibility	emission and immunity accord	ding to EN 61326
Mechanical stability	•	
Vibration	5 g RMS (25 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27
Filling fluids		
Standard	silicone oil	
Optional	food compatible oil with FDA	annroval
Ориона		ry Code: H1; NSF Registration No.: 141500)
Materials		
Pressure port	stainless steel 1.4435 (316 L)	
Housing	stainless steel 1.4404 (316 L)	
Display housing	PA 6.6, Polycarbonate	
Seals		KM (for media temperature ≤ 200 °C)
Cours		FKM ⁶ (for media temperature > 200 °C)
Diaphragm	stainless steel 1.4435	
Media wetted parts	pressure port, seals, diaphrag	ım
= pa	The second bear, come, anaprilag	,

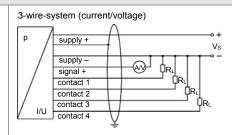
⁶ for pressure ranges P_N ≤ 100 bar

Explosion protection (only for 4	. 20 mA / 2-wire)
Approval AX14-DS 201P	IBExU06ATEX1050 X
	zone 1: II 2G Ex ia IIC T4 Gb (connector) / II 2G Ex ia IIB T4 Gb (cable)
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C \approx 0$ nF, $L_i \approx 0$ μH
Max. switching current ⁷	70 mA
Max. 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
⁷ the real switching current in the applicat	ion 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 (standard calibration in a vertical position with the pressure port connection down)
Weight	min. 200 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
ATEX Directive	2014/34/EU
	· ·

⁸ This directive is only valid for devices with maximum permissible overpressure > 200 bar.

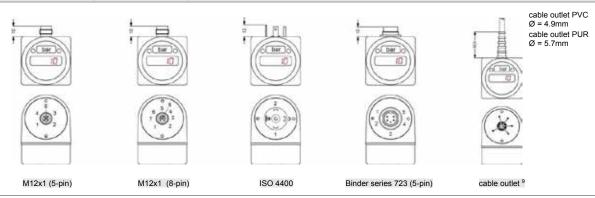
Wiring diagrams



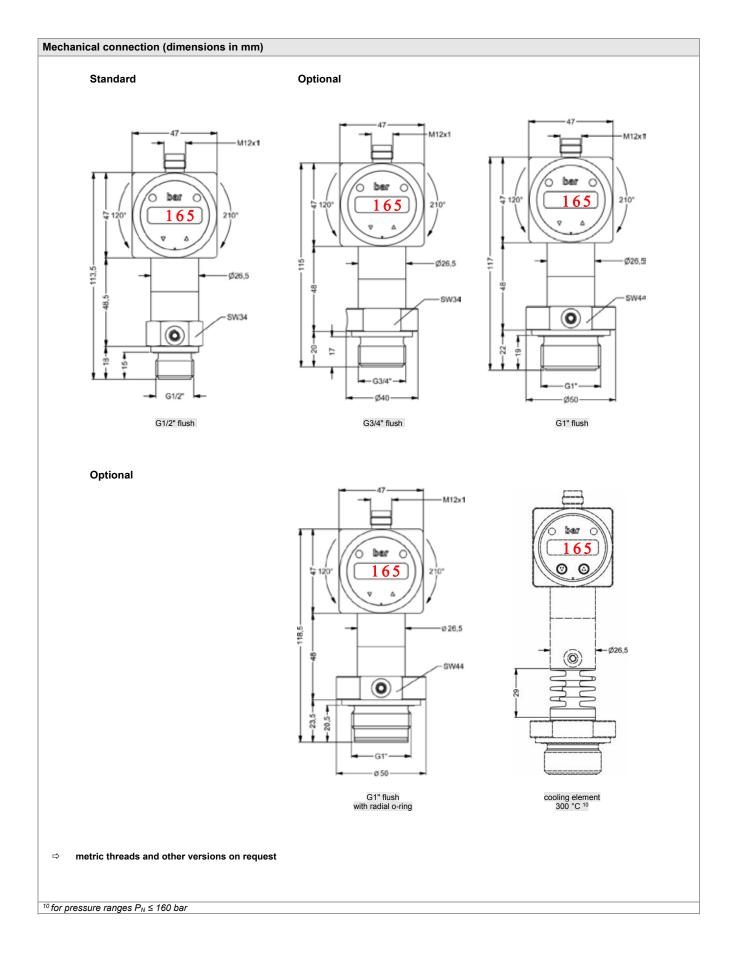


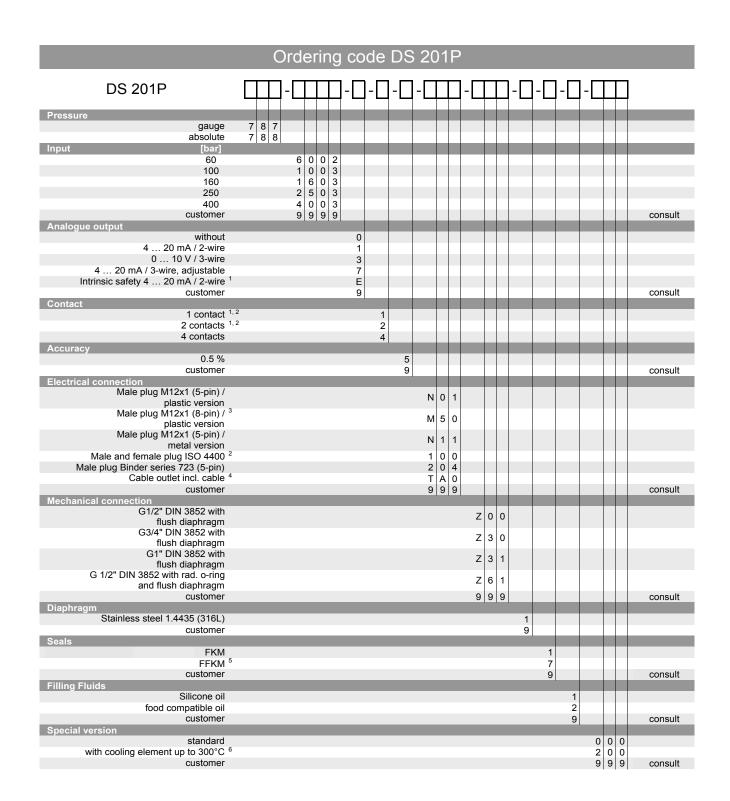
Pin configuration						
Electrical connection	M12x plastic (5-pin)	M12x metal (5-pin)	M12x plastic (8-pin)	ISO 4400	Binder series 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	1	1	1	wh (white)
Supply –	3	3	3	2	3	bn (brown)
Signal + (only for 3-wire)	2	2	2	3	2	gn (green)
Contact 1	4	4	4	3	4	gy (grey)
Contact 2	5	5	5	-	5	pk (pink)
Contact 3	-	-	6	-	-	bu (blue)
Contact 4	-	-	7	-	-	rd (red)
Shield	via pressure port	plug housing/ pressure port	via pressure port	ground contact	plug housing/ pressure port	gnye (green-yellow)

Electrical connections (dimensions in mm)



⁹ different cable types and lengths available, permissible temperature depends on kind of cable; standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70°C)





¹ with Ex version max. 1 contact is possible

 $^{^{2}}$ with connector ISO 4400 and output 2-wire version only max. 1 contact possible; with 3-wire version no contact possible

³ 4 contacts and M12x1, 8-pin only possible in combination and together with 4 ... 20 mA/3-wire; 0 ... 10 V/3-wire on request

 $^{^4}$ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 $^{\circ}\text{C}$), others on request

⁵ possible for nominal pressure ranges P_N ≤ 100 bar

 $^{^{6}}$ cooling element up to 300°C not possible for pressure range P_{N} > 160 bar



DS 217

Pressure Switch with welded Stainless Steel Sensor

Characteristics:

- ▶ accuracy according to IEC 60770: 0.5 % FSO
- ► nominal pressure ranges from 0 ... 6 bar up to 0 ... 600 bar
- ► 1 analogue output and up to 2 contacts
- display and housing rotatable
- ► suitable for oxygen applications







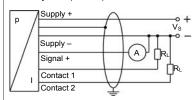
I4												
Input pressure range				1		1	1		1	1		
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure (static)	[bar]	12	20	32	50	80	120	200	320	500	800	1 200
Burst pressure ≥	[bar]		30 50 80 125 200 300 500 800 1 400 2 000 3 000									
Vacuum resistance		unlimited	nlimited									
Contact												
Number / type		standard		1 PNP co								
		optional	y : 1	max. 2 inc	depender	nt PNP co	ntact; 1 a	nalogue (output			
Switching current		standard	l: contac	t rating m	ax. 125 m	nA, short-	circuit res	sistant				
Accuracy of switching poin	ts 1	≤ ± 1.5 %										
Repeatability		$\leq \pm 0.5$ %	≤±0.5 % FSO									
Switching frequency		max. 10										
Switching cycles			> 100 x 10 ⁶									
Delay time		0 100 sec										
Analogue output (option	ally) / S	Supply										
3-wire current signal		4 20 r	nA / Vs =	24 V _{DC} :	± 10 %							
Accuracy 1		≤ ± 0.5 %	6 FSO									
Permissible load		3-wire:	$R_{max} = 5$	00 Ω								
Influence effects		supply:	0.05 % F	SO / 10	V							
		load:	0.05 % F	$-SO/k\Omega$								
Measuring rate		10 Hz										
¹ accuracy according to IEC 60	0770 — Iir	nit point ad	justment (non-lineari	ty, hystere	sis, repeat	ability)					
Thermal effects (Offset a	nd Spa	n) / Perm	issible t	emperatu	ıres							
Thermal error		≤ ± 0.5 %	% FSO /	10 K	in com	pensated	d range -2	5 85 °C)			
Permissible temperatures		medium	medium: -25 125 °C									
		electronics / environment: -25 85 °C										
		storage: -40 85 °C										
Electrical protection												
Short-circuit protection		permane	ent									
Reverse polarity protection	1	no dama	no damage, but also no function									
Electromagnetic compatibi	patibility emission and immunity according to EN 61326											

Mechanical stability								
Vibration	10 g (25 2000 Hz)	according to DIN EN 60068-2-6						
Shock	500 g / 1 msec	500 g / 1 msec according to DIN EN 60068-2-27						
Materials								
Pressure port / housing	stainless steel 1.4571 (316	Ti) / stainless steel 1.4301 (304)						
Display housing	PA 6.6, polycarbonate							
Seal sensor	none (welded)							
Diaphragm	stainless steel 1.4542 (17-4	stainless steel 1.4542 (17-4PH)						
Media wetted parts	pressure port, seal pressure	pressure port, seal pressure port, diaphragm						
Miscellaneous								
Weight	approx. 160 g							
Display	4-digit, red LED display, dig	git height 7 mm, digit width 4.85 mm (angle 10°);						
	range of indication -1999	+9999; accuracy 0.1% ± 1 digit;						
	digital damping 0.3 30 se	ec (programmable);						
	measured value update 0.0	10 sec (programmable)						
Long term stability	≤ ± 0.3 % FSO / year at refe	erence conditions						
Operational life	100 million load cycles							
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) ²						

² This directive is only valid for devices with maximum permissible overpressure > 200 bar.

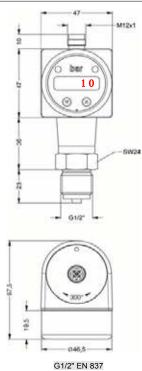
Wiring diagrams

3-wire-system (current)

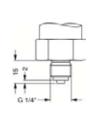


Pin configuration	
Electrical connections	M12x1 (5-pin) plastic
supply +	1
supply –	3
signal + (only for 3-wire)	2
contact 1	4
contact 2	5
shield	via pressure port

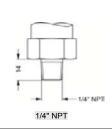
Connections (dimensions in mm)



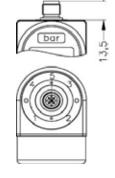
Mechanical connections - optional



G1/4" EN 837

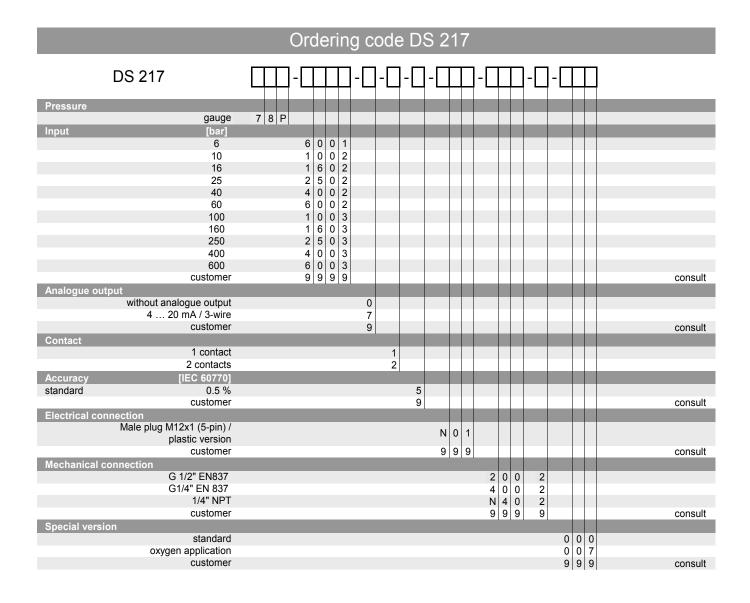


Electronical connections



M12x1 (5-pin)

Ordering Code





DS 230

Electronic OEM Pressure Switch

Applications:

- pneumatics
- pumps and hydraulic machines

Characteristics:

- nominal pressure ranges from 0 ... 2 bar up to 0 ... 400 bar
- ▶ display and housing rotatable
- ▶ up to 2 contacts
- ► configurable via display
- optional: analogue output

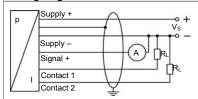




Input pressure range									
Nominal pressure gauge	[bar]	2	5	10	20	50	100	250	400
Overpressure	[bar]	4	10	20	40	100	200	400	600
Burst pressure	[bar]	7	15	35	70	150	250	450	650
Supply						,			
Supply voltage V _S		24 V _{DC} ±10	%						
Current consumption		< 40 mA (w	ithout analog	gue output ai	nd without co	ntacts)			
Output signal									
Number, type		standard:	1 PNP cont						
		optional:	max. 2 inde	pendent PN	P contacts; 1	analogue ou	ıtput		
Contact (Standard)									
Switching current		standard: c	tandard: contact rating max. 125 mA, short-circuit resistant						
Accuracy of contacts 1		≤ ± 1.5 % F	£ ± 1.5 % FSO BFSL						
Repeatability 1		≤ ± 0.5 % F	£± 0.5 % FSO BFSL						
Switching frequency		max. 100 H	nax. 100 Hz						
Switching cycles		> 100 x 10 ⁶	· 100 x 10 ⁶						
Functions		hysteresis- n/o / n/c	/ compare m	iode					
Delay time		0 99.99	sec						
Analogue output (optional	ly)								
Signal output		4 20 mA	(3-wire)						
Linearity, hysteresis, repeatability		≤ ± 0.5 % F	SO BFSL						
Calibration accuracy		≤±1%FS	≤±1% FSO BFSL (2% FSO)						
Permissible load		R _{max} = 500	Ω						
Response time		< 10 msec							
¹ depending on nominal press									
Thermal effects (Offset an	d Span)	/ Permissible	temperature	es					
Thermal error for offset		≤ ± 0.5 % F	SO / 10 K	in com	pensated ran	nge -25	85 °C		
Permissible temperatures		medium: -2	5 125 °C	electro	nics / enviror	nment: -25	85 °C	storage: -4	0 85 °C

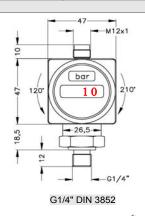
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port / housing	stainless steel 1.4301 (304)
Display housing	PA 6.6, Polycarbonate
Seals (media wetted)	FKM others on request
Diaphragm	ceramic Al ₂ O ₃ 96 %
Touchpad	polyester
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Display	4-digit, red LED display, digit size 7 mm, digit width 4.85 mm (angle 10 °); range of indication -1999 +9999; accuracy 0.3 % ±1 digit; digital damping 0.3 30 sec (programmable); measured value update 0.0 10 sec (programmable)
Weight	approx. 180 g
Installation position	any
Ingress protection	IP 65
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ²
² This directive is only valid for device	es with maximum permissible overpressure > 200 bar

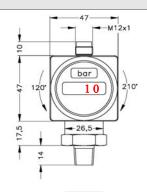
Wiring diagram



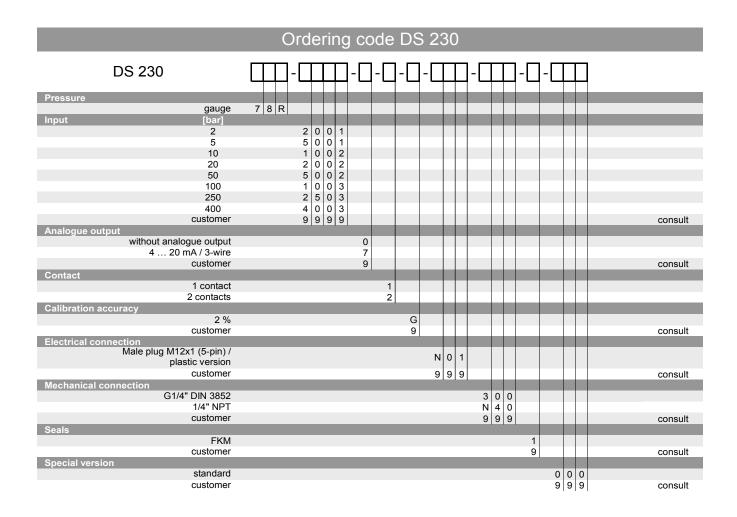
Pin configuration	
Electrical connection	M12x1 (5-pin), plastic
Supply +	1
Supply – Signal +	3
Signal +	2
Contact 1	4
Contact 2	5
Shield	via pressure port

Dimensions (in mm)





1/4" NPT





iS 4

Electronic OEM Pressure Switch Pneumatics with IO-Link Interface

Applications:

- Pneumatics
- Vacuum technology

Characteristics:

- nominal pressure ranges from 0 ... 1 bar up to 0 ... 10 bar also -1 ... 0 bar
- compact design
- IO-Link according to specification V 1.1







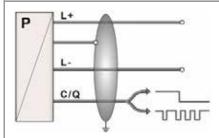
Input pressure range					
Nominal pressure gauge	[bar]	-1 0	1	3.5	10
Overpressure	[bar]	2	2	7	13

Output signal / Supply	
Standard	IO-Link (measured value and status transmission) / V_S = 18 30 V_{DC}
	SIO (switching output), status indication via LED (green)
IO-Link	V 1.1 / Slave / Smart Sensor Profile
Data transfer	COM2 38.4 kbit/s
Mode	SIO / IO-Link (COMx)
Standard	IEC 61131-2, IEC 61131-9

Performance			
Accuracy 1	≤ ± 0.5 % FSO		
Switching current (SIO-Mode)	max. 200 mA		
Switchingfrequency	max. 200 Hz		
Switching cycles	> 100 x 10 ⁶		
Long term stability	≤ ± 0.3 % FSO / year at reference of	conditions	
Turn-on time	SIO-Modus: ca. 20 ms		
Response time	SIO-Modus: < 4 ms		
Measuring rate	400 Hz		
¹ accuracy according to IEC 60770 – lin	nit point adjustment (non-linearity, hysteres	sis, repeatability)	
Thermal effects (Offset and Spa	n) / Permissible temperatures		
Tolerance band	≤ ± 2 % FSO	in compensated range 0 50 °C	
TC, average	≤ ± 0.4 % FSO / 10 K	in compensated range 0 50 °C	
Permissible temperatures	medium / electronics / environment	: -25 85 °C	storage: -40 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	

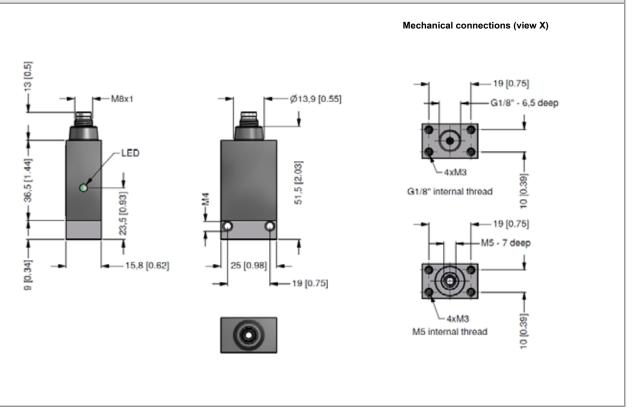
Mechanical stability		
Vibration	10 g RMS (20 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27
Materials		
Pressure port	aluminium	
Housing	PA 6.6 black	
Seal (media wetted)	NBR	
Sensor	silicon, RTV	
Media wetted parts	pressure port, seal, sensor	
Miscellaneous		
Media	compressed air, non-aggressive	gases
Weight	approx. 25 g	
Operational life	100 million load cycles	
Installation position	any	
Ingress protection	IP 54	
CE-conformity	EMC Directive: 2014/30/EU	

Wiring diagram

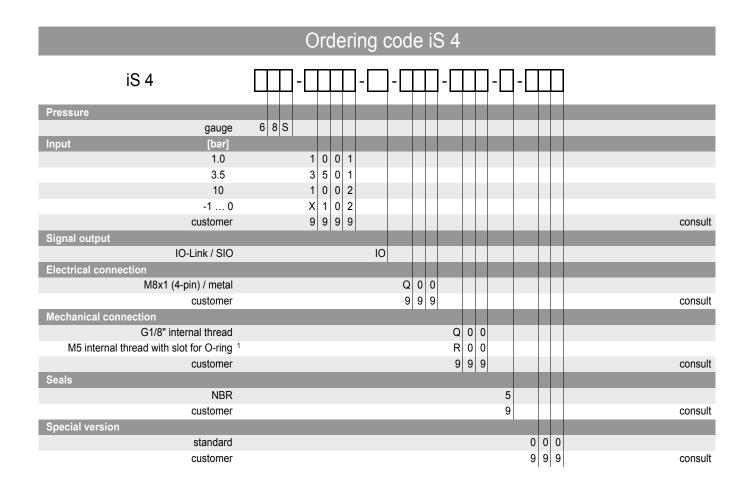


Pin confi	iguration	
Electrical	I connection	M8x1 / metal (4-pin)
(L+)	Supply +	1
(L-)	Supply –	3
C/Q	IO-Link (COMx) / SIO	4
	Shield	housing

Dimensions (mm / in)



1 General o	device information	n	4. Process data					
			4. FIUCESS data					
Baud rate nput process		COM2 (38.4 kbit/s) 2 byte	The process data length of					
/linimum cycle		5 ms	values are transmitted. The	e 14 bits of the me	ed according to the m	neasuring r	ange.	
O-Link version		V 1.1	15 bit	14	2	1		0
SIO mode		ves	Signed Bit	measure		0	BDC1	/ output 1
	e (standard IO m		5. Error message					
	•	like a normal pressure	Error Codes		Description			
		als. The digital output is			· ·	-: - - -		
lways on Pin	4 of the connector	plug.	0x8011		Index not ava			
			0x8012		Subindex no			
			0x8023		Access Deni	ed		
			0x8030		Parameter V	alue out of Range		
			0x8033		Parameter le	ngth overrun		
			0x8034		Parameter le	ngth underrun		
R IO-I ink m	node (communic	ation mode)	6. Event codes					
	•	to IO-Link communica-	o. Event codes	Event-Codes	Event-Codes	1	1	
		an IO-Link master. IO-		IO-Link 1.1	IO-Link 1.0	Device status		Гуре
		ble via Pin connector.	No malfunction	0x0000		0	Not	ification
				0,0000	0x0000	0	INOI	moation
			General malfunction-	0x1000	0x1000	4		Error
			unknown error Process variable					
			range over-run -	0x8C10	0x8C10	2	l w	arning
			Process Data uncertain				''	
			Process variable	0x8C30	0x8C10			
			range under-run.	2 Warnin		arning		
	1.4 (Th		Process Data uncertain					
T		1	ure sensor correspond to	the Smart Sensor	r profile.)			
Index hex	Subindex hex	Object name	Single Value			Default	Comme	
			0x81 = delete Min-/Max-W	/ert			1	e action
0x02	0x00	System Commands	0x82 = res				xecuted writing	
			0xA0 = Set0				subindex	
			0x01: Upload Start					
			0x02: Upload End					
0x03	0x00	Data Storage Index	0x03: Download Start					
			0x04: Download End					
			0x05: Datastorage Break					
			0x00: Unlocked					
			0x01: IO-Link Lock					
			0x02: Datastorage Lock					
			0x04: Parameterization Lo					
			0x08: User Interface Lock					
			0x03: IO-Link Lock + Data	•	0x00:			
0x0C	0x00	Device Access Lock	0x05: IO-Link Lock + Para			Unlocked		
			0x09: IO-Link Lock + User		L and			
			0x06: Datastorage Lock +					
			0x0A: Datastorage Lock +					
			0x07: Datastorage Lock +					
			0x0B: Datastorage Lock +	IU-LINK LOCK + Us	er			
			Interface Lock	roperly.				
i		I .	0x00 Device is operating p	лорену				
0x24	UVUU	Device Status	NVN2 Out of Charification			1		
0x24	0x00	Device Status	0x02 Out-of-Specification					
0x24	0x00	Device Status	0x04 Failure					
			0x04 Failure 0x80: Hysteresis NO					
0x24 0x3D	0x00 0x02	Device Status Switch Point mode	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC			0x80: HNo		
			0x04 Failure 0x80: Hysteresis NO			0x80: HNo		
0x3D	0x02	Switch Point mode	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC	Lenath	Value Range		Unit	Defaul
0x3D	0x02 Subindex hex	Switch Point mode Object name	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access	Length	Value Range	0x80: HNo Gradient	Unit	
0x3D Index hex 0x3C	0x02 Subindex hex 0x01	Switch Point mode Object name SetPoint 1 = SP	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W	2 Byte	Process Data		Unit	100%
0x3D ndex hex	0x02 Subindex hex 0x01 0x02	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W	2 Byte 2 Byte	Process Data Process Data	Gradient		100%
0x3D Index hex 0x3C	0x02 Subindex hex 0x01	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W	2 Byte	Process Data		Unit	100%
0x3D Index hex 0x3C 0x3C	0x02 Subindex hex 0x01 0x02	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time Delay Back Switching	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W	2 Byte 2 Byte	Process Data Process Data	Gradient		100%
0x3D Index hex 0x3C 0x3C 0xD0 0xD1	0x02 Subindex hex 0x01 0x02 0x00 0x00	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time Delay Back Switching Time	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W R/W R/W	2 Byte 2 Byte 2 Byte 2 Byte 2 Byte	Process Data Process Data 0 500 0 500	Gradient 0.1	sec	100% 0% 0
0x3D Index hex 0x3C 0x3C 0xD0 0xD1 0xD5	0x02 Subindex hex 0x01 0x02 0x00 0x00 0x00	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time Delay Back Switching Time Min Pressure Value	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W R/W R/W R/W	2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte	Process Data Process Data 0 500 0 500 Process Data	Gradient 0.1	sec	100% 0% 0
0x3D Index hex 0x3C 0x3C 0xD0 0xD1	0x02 Subindex hex 0x01 0x02 0x00 0x00	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time Delay Back Switching Time	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W R/W R/W	2 Byte 2 Byte 2 Byte 2 Byte 2 Byte	Process Data Process Data 0 500 0 500 Process Data Process Data	Gradient 0.1	sec	100% 0% 0
0x3D Index hex 0x3C 0x3C 0x3C 0xD0 0xD1 0xD5	0x02 Subindex hex 0x01 0x02 0x00 0x00 0x00	Switch Point mode Object name SetPoint 1 = SP SetPoint 2 = rP Delay Switching Time Delay Back Switching Time Min Pressure Value	0x04 Failure 0x80: Hysteresis NO 0x81: Hysteresis NC 0x82: Window NO 0x83: Window NC Access R/W R/W R/W R/W R/W	2 Byte 2 Byte 2 Byte 2 Byte 2 Byte 2 Byte	Process Data Process Data 0 500 0 500 Process Data	Gradient 0.1	sec	0



¹ suitable for flange installation



DS 4

Electronic OEM Pressure Switch Pneumatics

Applications:

- **Pneumatics**
- Vacuum technology

Characteristics:

- nominal pressure ranges from 0 ... 1 bar up to 0 ... 10 bar also -1 ... 0 bar
- 1 or 2 contacts
- compact design
- configurable via PC or programming device P6





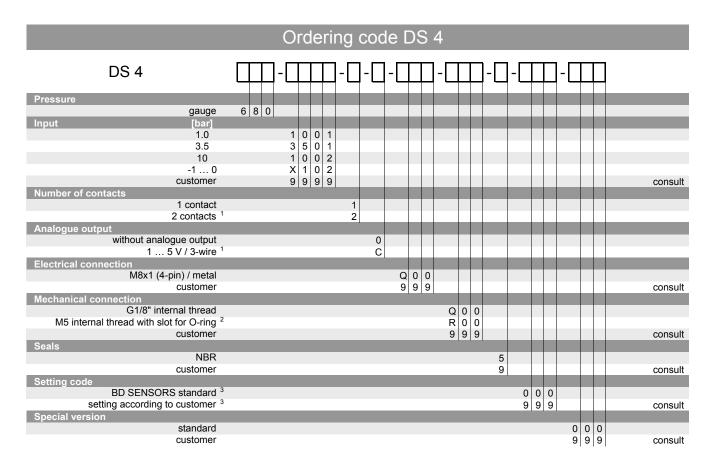


Input pressure range							
Nominal pressure gauge	[bar]	-1	0	1		3.5	10
Overpressure	[bar]		2	2		7	13
Supply							
Supply voltage		V _S = 12	30 V _{DC}				
Current consumption		max. 14 m	A (without co	ontacts)			
Output signal							
Contact ¹							
Number		standard:	1		option:	2	
Туре		PNP					
Switching performance		max. 300	mA, short-circ	uit proof			
Accuracy of contacts ²		≤±1% FSO					
Repeatability		≤±0.2 % FSO					
Status indication		SP 1:	green		SP 2:	yellow	
Switching function ³		standard:	n/o		option:	n/c	
Switching mode ³		standard:	hysteresis m	ode	option:	window mode	
Switch on point ³		standard:	factory settin	g 80 % FSO			
		others:	specify on or	der; adjustable range (0 100 % F	SO	
Switch off point ³			factory settin				
		others:		der; adjustable range (0 100 % F	so	
Switch on / switch off delay	3	standard:					
		others:		der, adjustable range f	from 10 msec	c up to 90 sec (step 10 msec)
Switching frequency			ithout switchir	ng delay)			
Switching cycles		> 100 x 10	16				
Analogue output ¹ (option	nally)						
Analogue output		1 5 V / 3					
Accuracy		IEC 60770	0^3 : $\leq \pm 2 \% FS$	80			
Permissible load		R _{min} = 10 k	Ω				

²accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)
³ Parameters can be programmed by customer either with the programming kit CIS 680 / CIS 681 or with the programming device P6 (available as accessories).

Tolerance band TC, average S±0.4 % FSO / 10 K Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Wibration Shock TO. g RMS (20 2000 Hz) Shock Tolerance band Tolerance band Reverse polarity protection Reverse polarity protection Electromagnetic compatibility Wibration Tolerance band Tolerance band Reverse polarity protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Tolerance band Tolerance band Reverse polarity protection Tolerance band and subscipling pressure port seal, sensor silicon, RTV Media wetted parts Media compressed air, non-aggree weight approx. 50 g Installation position any Operational life approx. 50 g Installation position load cycles in pressure port, seal, sensor miscellaneous Media compressed air, non-aggree weight approx. 50 g Installation position load cycles in pressure port, seal, sensor miscellaneous Media compressed air, non-aggree weight approx. 50 g Installation position load cycles in pressure port, seal, sensor miscellaneous Media compressed air, non-aggree weight approx. 50 g Installation position any Tolerance band and memission any Tolerance band and memission	inction cording to EN 61326
Permissible temperatures Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock 100 g / 11 msec Materials Pressure port Housing Seal (media wetted) Seal (media wetted parts Media compressed air, non-aggre weight Installation position Operational life Ingress protection 10 g RMS (20 2000 Hz) Silicon, RTV Media wetted parts Media compressed air, non-aggre weight Installation position Operational life Ingress protection 10 million load cycles Ingress protection 10 EMC Directive: 2014/30/Et Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - Signal + Contact 1 4 Contact 2 - Shield NBR 2 contacts (without supply + Supply - Signal + Contact 2 - Shield Dimensions (in mm)	vironment: -25 85 °C storage: -40 85 °C inction coording to EN 61326 according to DIN EN 60068-2-6
Electrical protection Short-circuit protection Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock 100 g RMS (20 2000 Hz) Shock 100 g / 11 msec Materials Pressure port Housing PA 6.6 black Seal (media wetted) Seals (media wetted) Sensor Miscellaneous Media Compressed air, non-aggre Weight Installation position Operational life Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/Et Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 2 Shield housing Dimensions (in mm)	vironment: -25 85 °C storage: -40 85 °C inction coording to EN 61326 according to DIN EN 60068-2-6
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Wechanical stability Vibration Shock 100 g / 11 msec Materials Pressure port Housing PA 6.6 black Seal (media wetted) NBR Sensor Silicon, RTV Media wetted parts Media compressed air, non-aggre Weight Installation position Operational life Ingress protection IP 54 CE-conformity Wiring diagrams 1 contact (without analogue output) Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Shield housing Dimensions (in mm)	cording to EN 61326 according to DIN EN 60068-2-6
Short-circuit protection Reverse polarity protection Electromagnetic compatibility Wechanical stability Vibration Shock 100 g / 11 msec Materials Pressure port Housing PA 6.6 black Seal (media wetted) NBR Sensor Silicon, RTV Media wetted parts Media compressed air, non-aggre Weight Installation position Operational life Ingress protection IP 54 CE-conformity Wiring diagrams 1 contact (without analogue output) Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Shield housing Dimensions (in mm)	cording to EN 61326 according to DIN EN 60068-2-6
Reverse polarity protection Electromagnetic compatibility Mechanical stability Vibration Shock 100 g / 11 msec Materials Pressure port Housing Seal (media wetted) Seal (media wetted) Sensor Miscellaneous Media compressed air, non-aggre weight Installation position Operational life Ingress protection IP 54 CE-conformity Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 2 Signal + Contact 1 Contact 2 Shield housing Dimensions (in mm)	cording to EN 61326 according to DIN EN 60068-2-6
Electromagnetic compatibility Mechanical stability Vibration Shock 100 g / 11 msec Materials Pressure port Housing PA 6.6 black Seal (media wetted) Sensor Miscellaneous Media compressed air, non-aggre Meight Installation position Operational life Ingress protection CE-conformity Wiring diagrams 1 contact (without analogue output) Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - Signal + Contact 1 Contact 2 Shield Dimensions (in mm)	cording to EN 61326 according to DIN EN 60068-2-6
Mechanical stability Vibration 10 g RMS (20 2000 Hz) Shock 100 g / 11 msec Materials Pressure port aluminium Housing PA 6.6 black Seal (media wetted) NBR Sensor silicon, RTV Media wetted parts pressure port, seal, sensor Miscellaneous Media compressed air, non-aggre approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 2 Shield housing Dimensions (in mm)) according to DIN EN 60068-2-6
Vibration 10 g RMS (20 2000 Hz) Shock 100 g / 11 msec Materials Pressure port aluminium Housing PA 6.6 black Seal (media wetted) NBR Sensor silicon, RTV Media wetted parts pressure port, seal, sensor Miscellaneous Media compressed air, non-aggre approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)) according to DIN EN 60068-2-6 according to DIN EN 60068-2-27
Shock Materials Pressure port Aluminium Housing PA 6.6 black Seal (media wetted) Sensor Miscellaneous Media wetted parts Media Compressed air, non-aggretic particular approx. 50 g Installation position Operational life Ingress protection IP 54 CE-conformity Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 1 Contact 2 Shield Dimensions (in mm)	according to DIN EN 60068-2-6 according to DIN EN 60068-2-27
Materials Pressure port aluminium Housing PA 6.6 black Seal (media wetted) NBR Sensor silicon, RTV Media wetted parts pressure port, seal, sensor Miscellaneous Media compressed air, non-aggre Weight approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Physipply + Vs Supply + Vs Supply - Contact 1 Contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Signal + Contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)	according to DIN EN 60068-2-27
Pressure port aluminium Housing PA 6.6 black Seal (media wetted) NBR Sensor silicon, RTV Media wetted parts pressure port, seal, sensor Miscellaneous Media compressed air, non-aggre Weight approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) P supply + Vs supply + Vs supply - Signal + Contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)	
Housing Seal (media wetted) Seal (media wetted) Sensor silicon, RTV Media wetted parts pressure port, seal, sensor Miscellaneous Media compressed air, non-aggre Weight approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)	
Seal (media wetted) Sensor Sensor Silicon, RTV Media wetted parts Media Weight Weight Installation position Operational life Ingress protection CE-conformity Wiring diagrams 1 contact (without analogue output) Supply + Supply - Signal + Contact Contact 1 Contact 2 Shield NBR Silicon, RTV pressure port, seal, sensor Miscellaneous Media Compressed air, non-aggre approx. 50 g Installation position any Operational life 100 million load cycles IP 54 CE-conformity EMC Directive: 2014/30/EU Prin contact (without analogue output) Supply + Supply - Supply - Signal + Contact 1 Contact 1 Contact 2 Shield Dimensions (in mm) NBR Signal + Contact 2 Shield Nousing Dimensions (in mm)	
Sensor Media wetted parts Media wetted parts Media Compressed air, non-aggre Weight approx. 50 g Installation position Operational life Ingress protection IP 54 CE-conformity Wiring diagrams 1 contact (without analogue output) Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - Signal + Contact 1 Contact 2 Shield Nax1 / metal (4-pin) 1 contact Supply - Signal + Contact 1 Contact 2 Shield Dimensions (in mm)	
Media wetted parts Miscellaneous Media Me	
Media wetted parts Miscellaneous Media Me	
Media compressed air, non-aggree approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Supply + Supply - Contact 1 Contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact 1 Contact 1 Contact 1 Contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)	 r
Media compressed air, non-aggree Weight approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Supply + Vs Supply - V contact 1 Contact 2 Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + 3 Signal + - Contact 1 Contact 1 Contact 2 Shield housing Dimensions (in mm)	
Weight approx. 50 g Installation position any Operational life 100 million load cycles Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) supply +	roccivo gococ
Installation position Operational life Ingress protection IP 54 CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) Supply + P Supply - Contact Supply + Supply - Signal + Contact 1 Contact 2 Shield Signal + Contact 2 Shield CE-conformity Amazina in a supply - Contact 1 Amazina in a supply - Contact 1 Amazina in a supply - Contact 2 Amazina in a supply - Contact 1 Amazina in a supply - Contact 2 Amazina in a supply - Contact 1 Amazina in a supply - Contact 2 Amazina in a supply - Contact 1 Amazina in a supply - Contact 2 Amazina in a supply - Contact 2 Amazina in a supply - Contact 1 Amazina in a supply - Contact 2 A	COSIVE GASES
Operational life	
Ingress protection CE-conformity EMC Directive: 2014/30/EU Wiring diagrams 1 contact (without analogue output) supply + p contact Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - Signal + Contact 1 Contact 2 Shield Nousing Dimensions (in mm)	
CE-conformity Wiring diagrams 1 contact (without analogue output) Supply + Vs Supply - Contact 1 Contact 2 Pin configuration Electrical connection Supply + Supply - Signal + Contact 1 Contact 2 Shield housing Dimensions (in mm) EMC Directive: 2014/30/EU 2 contacts (without supply + Supply - Contact 1 Contact 2 Shield housing	
Wiring diagrams 1 contact (without analogue output) supply +	
1 contact (without analogue output) Supply +	U
Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - 3 Signal + Contact 1 Contact 2 Shield housing Dimensions (in mm)	
Pin configuration Electrical connection M8x1 / metal (4-pin) 1 contact Supply + Supply - 3 Signal + Contact 1 Contact 2 Shield housing Dimensions (in mm)	ut analogue output) 1 contact (with analogue output)
Electrical connection Supply + 1	supply + Vs supply - signal + contact
Supply + 1 Supply - 3 Signal + - Contact 1 4 Contact 2 - Shield housing Dimensions (in mm) Dimensions (in mm)	Ŧ
Supply — 3 Signal + - Contact 1	M8x1 / metal (4-pin) M8x1 / metal (4-pin) 1 contact
Signal + Contact 1 4 4 Contact 2 5 5 Shield housing Dimensions (in mm) M8x1 LED 1 99 LED 2 99 LED 3 99 LED 3 99 LED 3 99 LED 4 99 LED 4 99 LED 5 99 LED 6 99 LED 7 99 LED 7 99 LED 7 99 LED 8 99 LED 8 99 LED 9 9	M8x1 / metal (4-pin) 2 contacts M8x1 / metal (4-pin) 1 contact, 1 analogue output
Contact 1 Contact 2 Shield housing Dimensions (in mm) M8x1 LED 1 99 LED 2 99 LED 3 99 LED 3 99 LED 3 99 LED 4 99 LED 4 99 LED 5 99 LED 6 99 LED 7 99 LED 7 99 LED 7 99 LED 8 99 LED 8 99 LED 8 99 LED 9 99 LED	M8x1 / metal (4-pin) 2 contacts 1 M8x1 / metal (4-pin) 1 contact, 1 analogue output 1
Contact 2 Shield housing Dimensions (in mm) M8x1 LED 1 99 LED 2 99 LED 3 99 LED 3 99 LED 4 99 LED 4 99 LED 5 99 LED 6 99 LED 7 99 LED 7 99 LED 7 99 LED 8 99 LED 8 99 LED 9 99 LED	M8x1 / metal (4-pin) 2 contacts 1 3 M8x1 / metal (4-pin) 1 contact, 1 analogue output 1 3
Shield housing Dimensions (in mm) M8x1 LED 1 99 LED 2	M8x1 / metal (4-pin) 2 contacts 1 3 - 3 - 2
Dimensions (in mm) M8x1 LED 2 LED 1 99 SEZ WWW. SEZ LED 1 99 LED 1 9	M8x1 / metal (4-pin) 2 contacts 1 1 3 4 4 4 M8x1 / metal (4-pin) 1 contact, 1 analogue output 2 d 4
8.5 23.5 TED 1 2.3 15.5 15	M8x1 / metal (4-pin) 2 contacts 1 1 1 3 3 3 3 3 - 2 4 4 4 4 2 -
8.5 - 36.5 - 12.7 - 12.7 - 15.5 - 15.	M8x1 / metal (4-pin) 2 contacts 1 1 3 4 4 4 M8x1 / metal (4-pin) 1 contact, 1 analogue output 2 d 4
8,5 8,5 8,5 15,5 15,5 15,5 15,5 15,5 15,	M8x1 / metal (4-pin) 2 contacts 1 1 1 3 3 3 3 3 - 2 4 4 4 4 2 -
15.8 view X	M8x1 / metal (4-pin) 2 contacts 1 1 1 3 3 3 3 3 - 2 4 4 4 4 2 -

Ordering Code



¹ with optional analogue output max. 1 contact possible

² suitable for flange installation

³ Parameters can be programmed by customer either with the programming kit CIS 680 / CIS 681 or with the programming device P6 (available as accessories).



DS 6

Electronic OEM Pressure Switch

Applications:

- mechanical engineering / hydraulics
- measuring, control and process technology

Characteristics:

- ► nominal pressure ranges from 0 ... 2 bar up to 0 ... 400 bar
- ▶ 1 or 2 contacts
- configurable via PC or programming device P6
- optional: oil- and fat free version

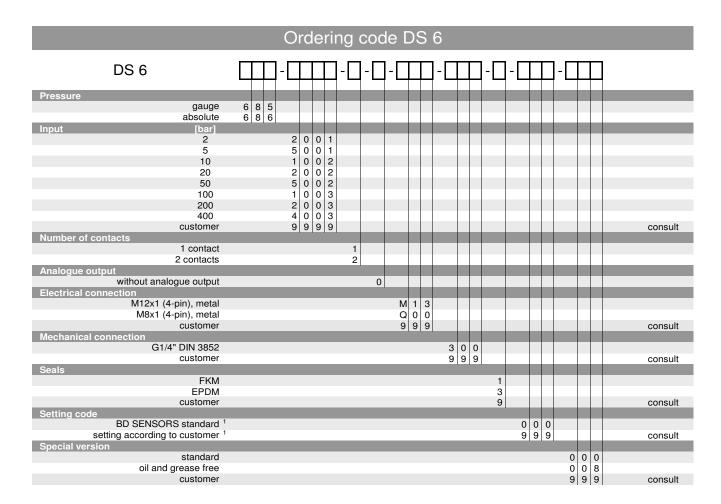






Input pressure range									
Nominal pressure gauge	[bar]	2	5	10	20	50	100	200	400
Nominal pressure abs.	[bar]	2	5	10	20	50	100	200	400
Overpressure	[bar]	7	12	25	120	250	400	600	
Supply									
Supply voltage V _S		12 30 V _D	С						
Current consumption		max. 14 mA (without contacts)							
Contacts									
Number		standard: 1				optional: 2			
Туре	Tanna and the same								
Switching performance	max. 300 mA, short-circuit proof								
Accuracy of contacts	IEC 60770: ≤ ± 1 % FSO								
Repeatability	≤±0.2 % FSO								
Minimum hysteresis of cor	≤±0.5 % FSO								
Status indication		SP 1: greer				SP 2: yello			
Switching function ¹		standard: n				optional: n			
Switching mode ¹			ysteresis mo			optional: w	indow mode		
Switch on point 1			actory setting		_				
0 11 1 11 11				der; adjustabl	e range 5	100 % FSO			
Switch off point 1		standard: factory setting 75 % FSO							
Conitals are / annitals aff alala	others: specify on order; adjustable range 5 100 % FSO								
Switch on / switch off dela	У	standard: off others: specify on order, adjustable range from 10 msec up to 90 sec (step 10 msec)							
Switching frequency		200 Hz (without switching delay)							
Switching cycles		> 100 x 10 ⁶							
¹ Parameters can be program.	med by cu			mmina kit CIS	-G or with the	programming (device P6 (ava	ilable as access	sories).
Thermal effects (Offset a									
Thermal error						in	compensate	ed range -25 .	85 °C
Permissible temperatures		medium / el	ectronics / e	nvironment:	-25 85 °C		torage: -40 .		
							<u> </u>		

Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no functi	
Electromagnetic compatibility	emission and immunity accord	ding to EN 61326
Mechanical stability		
Vibration	10 g RMS (20 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27
Materials	1 3	<u> </u>
Pressure port	stainless steel 1.4301 (304)	
Housing	stainless steel 1.4305 (303)	
Seals (media wetted)	standard: FKM	option: EPDM
Diaphragm	ceramic Al ₂ O ₃ 96 %	орион. Егым
Media wetted parts	pressure port, seals, diaphrag	ım
·	pressure port, sears, diaprirag	
Miscellaneous		
Weight	approx. 90 g	
Installation position	any	
Operational life	100 million load cycles	
Ingress protection	IP 67	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) ²
² This directive is only valid for devices	with maximum permissible overpres	sure > 200 bar
Wiring diagrams		
1 contact		2 contacts
supply +		sunnly +
р		/ · · · · · · · · · · · · · · · · · · ·
I . /	Vs — ○ —	
/ supply –	1	supply –
	L R∟	
/ V		Contact 1
contact		contact 2
\searrow		Contact 2
Pin configuration		=
	NACONA (A mim) mastal	A Mond (A min) months
Electrical connection	M12x1 (4-pin), metal	M8x1 (4-pin), metal
Supply +	1	1
Supply –	3	3
Contact 1	4 2	4 1 3
Contact 2		
Shield	plug housing	plug housing
Dimensions (mm / in)		
	plug housing	plug housing
		plug housing
	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
	plug housing	plug housing
	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing 5 1 1 2
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing SE 1.04
Dimensions (mm / in)	plug housing ### ### ### ### ### ### ### ### ### #	plug housing Ø28,5 [1.04] M8 [0.31]x1 [ELT 198 [SE 198 [S
Dimensions (mm / in)	plug housing 226,5 [1.04] - M12x1 - SW27	plug housing SE 1.04



¹ Parameters can be programmed by customer either with the programming kit CIS-G or with the programming device P6 (available as accessories).

COMPETENCE

Industrial pressure measurement technology from 0.1 mbar up to 8000 bar

> pressure transmitters, electronic pressure switches or hydrostatic level probes

- > OEM or high-end products
- > standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

PRICE / PERFORMANCE

Pressure measurement at the highest level

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

RELIABILITY

Projectable delivery times and strict observance of deadlines

Short delivery times and firm deadlines, even for special designs, make BD|SENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

FLEXIBILITY

We have special solutions for your individual requirement.

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders

INDUSTRIES



plant and machine engineering



chemical and biochemical industry



energy industry



renewable energy



semiconducter industry / cleanroom technology



HVAC



hydraulics



refrigeration



calibration techniques



laboratory techniques



medical technology



food and beverage



vehicles and mobile hydraulics



oil and gas industry



pharmaceutical industry



marine / shipbuilding / offshore



heavy industry



environmental industry



packaging and paper industry

MEDIA



sewage



aggressive media



colours



gases



fuels and oils



pasty and viscous media



oxygen



water



DISTRIBUTION WORLDWIDE

HEADQUARTERS BD | SENSORS GROUP BD | SENSORS GmbH BD-Sensors-Straße 1 95199 Thierstein GERMANY

Tel.: +49 9235 9811-0 Fax: +49 9235 9811-11

www.bdsensors.de info@bdsensors.de

DISTRIBUTION EASTERN EUROPE

BD | SENSORS s.r.o. Hradištská 817 68708 Buchlovice CZECH REPUBLIC

Tel.: +420 572 411-011 Fax: +420 572 411-497

www.bdsensors.cz sale@bdsensors.cz

DISTRIBUTION RUSSIA

BD | SENSORS Rus 37a, Varshavskoe shosse 117105 Moscow RUSSIA

Tel.: +420 572 411-011 Fax: +420 572 411-497

www.bdsensors.ru sales@bdsensors.ru

DISTRIBUTION CHINA

BD / SENSORS China Building B, 2nd floor, Building 10, No. 1188, Lianhang Road Pujiang Town, Minhang District, Shanghai CHINA

Tel.: 0086 / 21 / 51600190 Fax: 0086 / 21 / 33600610

www.bdsensors-china.com info@bdsensors-china.com

Status 01/2020 Technical changes