BD SENSORS®
pressure measurement

DS 300

Electronic Pressure Switch

IO-Link

Features:

- nominal pressure range from 0 ... 100 mbar up to 0 ... 600 bar
- accuracy: 0.35 % FSO
- output signal 1: IO-Link / SIO
- output signal 2: contact or analogue signal (optional)

Technical Data

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]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge	[bar]	10	16	25	40	60	100	160	250	400	600
Overpressure (static)	[bar]	40	80	80	105	210	210	600	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	420	1000	1250	1250	1800
Vacuum resistance		P_N ≥ 1 bar: fully vacuum resistant; P_N < 1 bar: on request									

Contact				
Voltage supply	V_S = 18 ... 30 V_{DC}			
	Output signal 1	**Output signal 2**		
Standard Optional	IO-Link / SIO (PNP or NPN) IO-Link / SIO (PNP or NPN)	+ +	1 PNP contact 1 NPN contact (on request)	
Switching current	200 mA			
Accuracy of switching points [1]	≤ ± 0.35 % FSO			
Repeatability	≤ ± 0.1 % FSO			
Switching frequency	max. 200 Hz			
Switching cycles	> 100 x 10^6			
Delay time	0.0 … 50.0 s			
Analog signal (optional)				
	Output signal 1	**Output signal 2**		
Voltage (3-wire)	IO-Link / SIO (PNP or NPN)	+	0 ... 10 V	permissible load: R_{min} = 10 kΩ
Current (3-wire)	IO-Link / SIO (PNP or NPN)	+	4 … 20 mA	permissible load: R_{max} = 330 Ω
Accuracy [1]	≤ ± 0.35 % FSO			
Influence effects	supply: 0.05 % FSO		load: ≤ 0.1 % FSO	
Long term stability	≤ ± 0.3 % FSO / year at reference conditions			
Response time	< 12 ms			
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)				

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Thermal effects (Offset and Span)					
Nominal pressure P_N	[bar]	-1 … 0	< 0.40	≥ 0.40	> 40
Tolerance band	[% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 1	≤ ± 0.75
in compensated range	[°C]	-20 ... 85	0 ... 70	-20 … 85	0 … 70

Permissible temperatures		
Permissible temperatures	medium: electronics/environment: storage:	-40 ... 125 °C -40 ... 85 °C -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

IO-Link	
Interface	IO-Link 1.1; Slave
Data transfer	COM2, 38,4 kBaud
Mode	SIO / IO-Link
Standard	IEC 61131-9

Mechanical stability		
Vibration	10 g / 25 Hz … 2 kHz	according to DIN EN 60068-2-6
Shock	500 g / 1 ms	according to DIN EN 60068-2-27

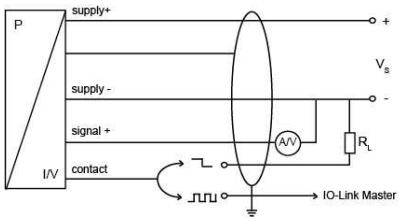
Materials		
Pressure port / Housing	stainless steel 1.4404	
Display housing	standard: PA 6.6	
Seals (media wetted)	standard: option:	FKM EPDM (for P_N ≤ 160 bar) welded version others on request
Diaphragm	stainless steel 1.4435	others on request
Media wetted parts	pressure port, seal, diaphragm	

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, yellow
Operation	2 buttons / functions according to VDMA 24574-1
Turn-on time	110 ms
Weight	approx. 220 g
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]

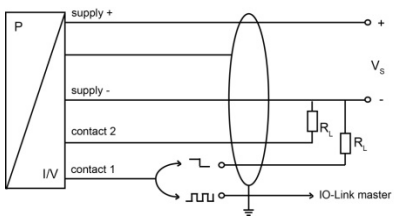
[2] Pressure transmitters are calibrated vertically with pressure port downwards. Changing the installation position could lead to minor zero offsets for pressure ranges P_N ≤ 1 bar.
[3] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagrams

3-wire-system (IO-Link / SIO with analogue output)



3-wire-system (IO-Link / SIO with contact)

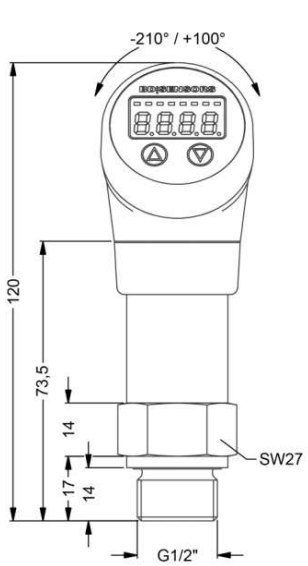


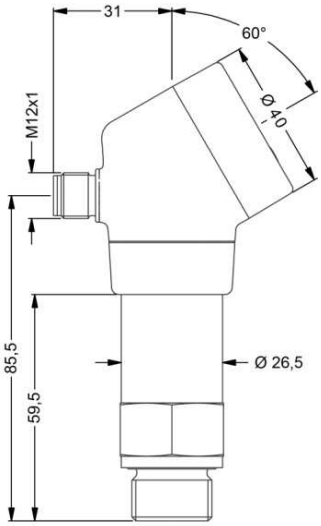
Pin configuration

Electrical connections	M12x1 (4-pin) plastic (without analogue output)	M12x1 (4-pin) plastic (with analogue output)
supply +	1	1
supply –	3	3
signal +	-	2
communication / contact 1	4	4
contact 2	2	-
shield	pressure port	pressure port

Mechanical connections (dimensions in mm)

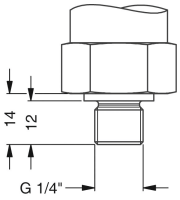
standard



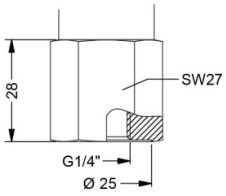


G1/2" DIN 3852

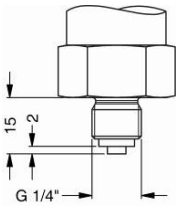
option



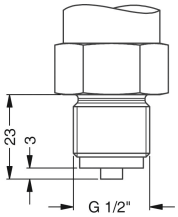
G1/4" DIN 3852



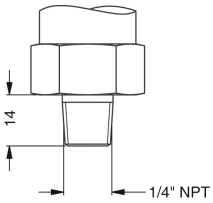
G1/4" DIN 3852
internal thread



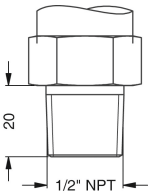
G1/4" EN 837



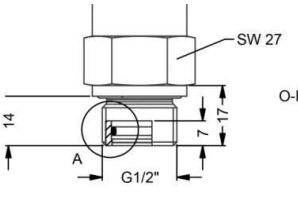
G1/2" EN 837

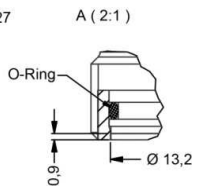


1/4" NPT

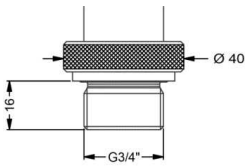


1/2" NPT





G1/2" DIN 3852
flush [4]



G3/4" DIN 3852
flush [4]

[4] not possible for nominal pressure PN > 40 bar and for vacuum ranges; for G3/4" flush; nominal pressure on request

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