



DS 300

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 2 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 \geq	[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 (static)	[bar]	40	80	80	105	210	210	600	1000	1000	1000		
Burst pressure \geq	[bar]	50	120	120	210	420	420	1000	1250	1250	1800		
Vacuum resistance		$P_N \geq 1$ bar: fully vacuum resistant $P_N < 1$ bar: on request											
Contact													
Voltage supply		$V_S = 18 \dots 30 V_{DC}$											
		Output signal 1						Output signal 2					
Standard		IO-Link / SIO (PNP or NPN) +						1 PNP contact					
Optional		IO-Link / SIO (PNP or NPN) +						1 NPN contact (on request)					
Switching current		200 mA											
Accuracy of switching points ¹		$\leq \pm 0.35$ % FSO											
Repeatability		$\leq \pm 0.1$ % FSO											
Switching frequency		max. 200 Hz											
Switching cycles		$> 100 \times 10^6$											
Delay time		0.0 ... 50.0 sec											
Analog output (optional)													
		Output signal 1						Output signal 2					
Voltage (3-wire)		IO-Link / SIO (PNP or NPN) +						0 ... 10 V			permissible load: $R_{min} \geq 10 k\Omega$		
Current (3-wire)		IO-Link / SIO (PNP or NPN) +						4 ... 20 mA			permissible load: $R_{max} \leq 330 \Omega$		
Accuracy ¹		nominal pressure ≥ 0.4 bar: $\leq \pm 0.35$ % FSO nominal pressure < 0.4 bar: $\leq \pm 0.5$ % FSO											
Influence effects		supply: 0.05 % FSO load: ≤ 0.1 % FSO											
Long term stability		$\leq \pm 0.3$ % FSO / year at reference conditions											
Response time		< 12 msec											
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)													
Thermal effects (Offset and Span)													
Nominal pressure P_N	[bar]	-1 ... 0	< 0.40				≥ 0.40			> 40			
Tolerance band	[% FSO]	$\leq \pm 0.75$	$\leq \pm 1$				$\leq \pm 1$			$\leq \pm 0.75$			
in compensated range	[°C]	-20 ... 85	0 ... 70				-20 ... 85			0 ... 70			
Permissible temperatures													
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											
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 msec						according to DIN EN 60068-2-27					

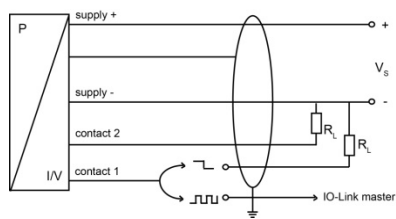
Materials	
Pressure port / Housing	stainless steel 1.4404 (316L)
Display housing	standard: PA 6.6
Seals (media wetted)	standard: FKM option: EPDM others on request
Diaphragm	stainless steel 1.4435 others on request
Media wetted parts	pressure port, seal, diaphragm
Miscellaneous	
Display	4-digit, red 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, yellow
Operation	2 buttons / functions according to VDMA 24574-1
Turn-on time	110 msec
Weight	approx. 220 g
Current consumption	< 40 mA
Protection class	IP 65 IP67
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 $P_N \leq 1$ bar.

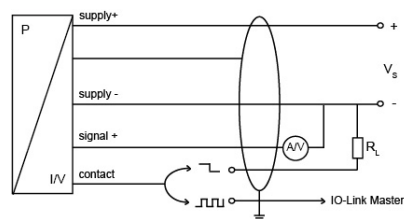
³ This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagrams



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



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



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

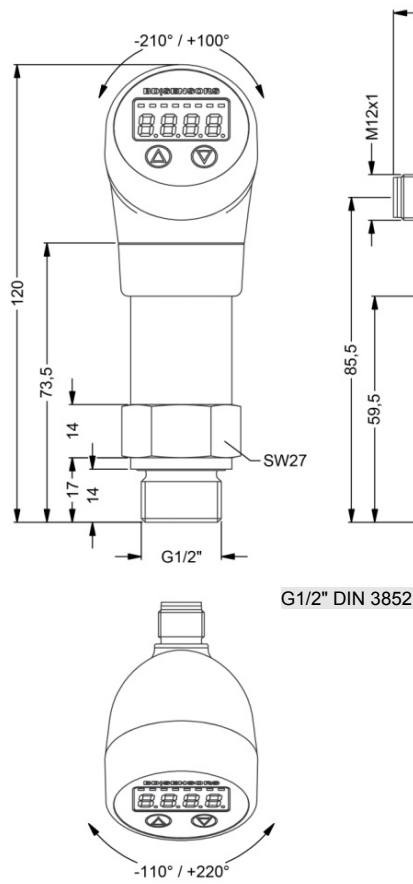
DS 300

electronic pressure switch

Technical Data

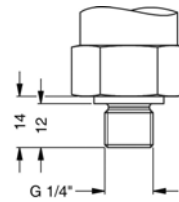
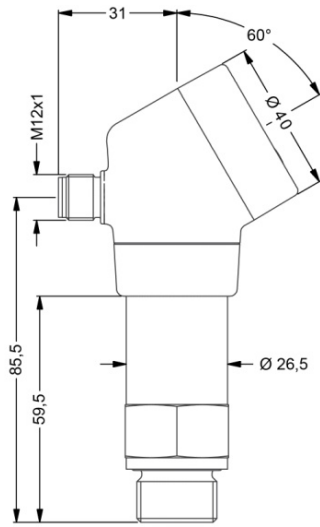
Mechanical connections (dimensions in mm)

standard

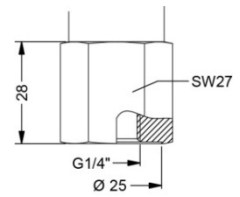


G1/2" DIN 3852

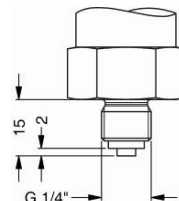
option



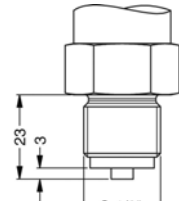
G1/4" DIN 3852



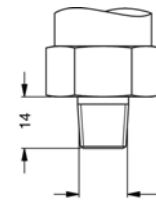
G1/4" DIN 3852
internal thread



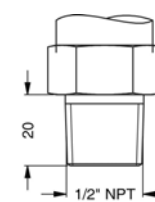
G1/4" EN 837



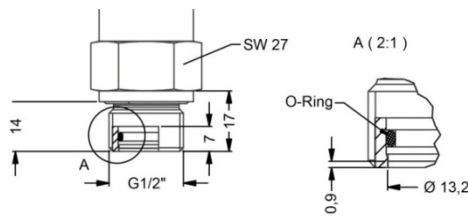
G1/2" EN 837



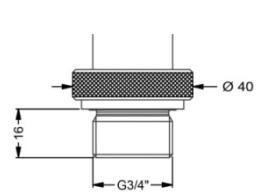
1/4" NPT



1/2" NPT



G1/2" DIN 3852
flush⁴



G3/4" DIN 3852
flush⁴

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

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