



## DS 4

### OEM Pressure Switch for Pneumatics / Vacuum

- ▶ 1 or 2 contacts
- ▶ contacts freely configurable via adapter or programming device
- ▶ nominal pressure ranges from 0 ... 1 bar up to 0 ... 10 bar also -1 ... 0 bar

The electronic pressure switch DS 4 has been designed for pneumatics and vacuum applications.

Due to the materials aluminium for the pressure port and silicon for the pressure sensor the DS 4 is suited for use with gases or compressed air. The housing for the switching electronics is PA 6.6.

The new microcontroller switching electronics offers – besides standard functions – many additional features for optimal adaption to the measuring requirements.

One or two freely programmable contacts, whose status is indicated by differently coloured LED's, can be configured quickly and comfortably either by optionally available programming kit CIS-Set or via programming device P6.

Preferred areas of use are:

- ▶ Pneumatics
- ▶ Vacuum applications

- ▶ compact design
- ▶ mechanical connection internal thread G1/8" or M5
- ▶ electrical connection M8x1 4-pin
- ▶ optional: analogue output (1 ... 5 V / 3-wire)
- ▶ customer specific versions on request

Characteristics



DS 4  
OEM Pressure Switch

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

Supply	
Supply Voltage $V_s$	12 ... 30 V <sub>DC</sub>
Current consumption	max. 14 mA (without contacts)

Output signal		
<b>Contact <sup>1</sup></b>		
Number	standard: 1	optional: 2
Type	PNP	
Switching performance	max. 300 mA, short-circuit proof	
Accuracy of contacts	IEC 60770 <sup>2</sup> : $\leq \pm 1\%$ FSO	BFSL: $\leq \pm 0.5\%$ FSO
Repeatability	$\leq \pm 0.2\%$ FSO	
Status indication	SP 1: green	SP 2: yellow
Switching function <sup>3</sup>	standard: n/o	optional: n/c
Switching mode <sup>3</sup>	standard: hysteresis mode	optional: window mode
Switch on point <sup>3</sup>	standard: factory setting 80 % FSO others: specify on order; adjustable range 0 ... 100 % FSO	
Switch off point <sup>3</sup>	standard: factory setting 75 % FSO others: specify on order; adjustable range 0 ... 100 % FSO	
Switch on / switch off delay <sup>3</sup>	standard: off others: specify on order, adjustable range from 10 ms to 90 s (step 10 ms)	
Switching frequency	200 Hz (without switching delay)	
Switching cycles	$> 100 \times 10^6$	
<b>Analogue output <sup>1</sup></b>		
Analogue output	standard: without	optional: 1 ... 5 V / 3-wire
Accuracy	IEC 60770 <sup>2</sup> : $\leq \pm 2\%$ FSO	BFSL: $\leq \pm 1\%$ FSO
Permissible load	$R_{min} = 10 \text{ k}\Omega$	

Thermal errors (Offset and Span)	
Tolerance band	$\leq \pm 2\%$ FSO
TC, average	$\pm 0.4\%$ FSO / 10 K
in compensated range	0 ... 50 °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)	Shock	100 g / 11 ms

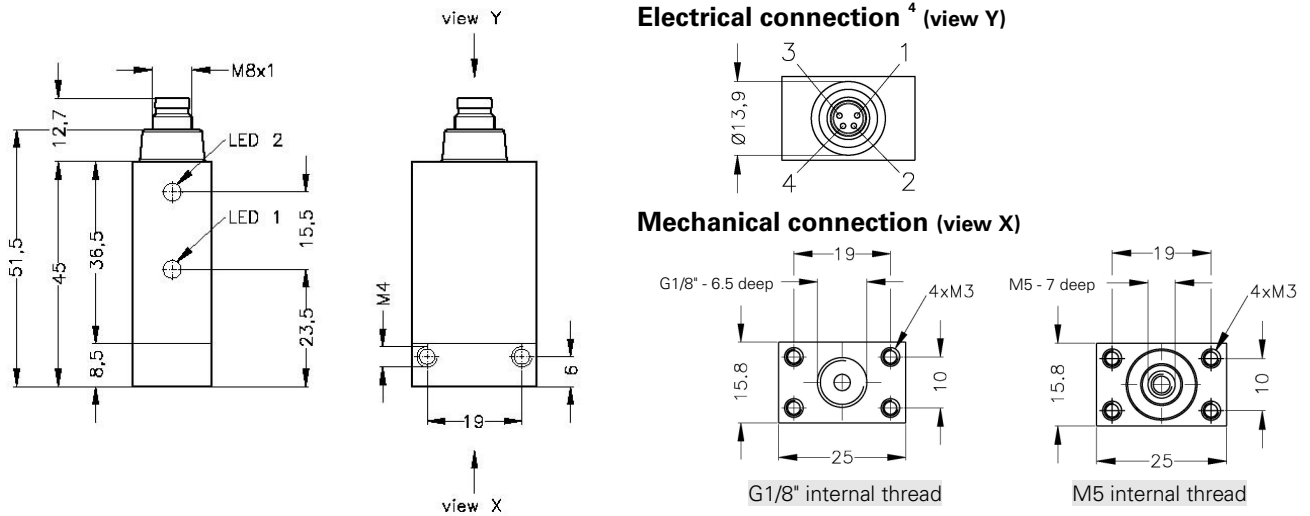
Permissible temperatures			
Medium	-25 ... 85 °C	Electronics / environment	-25 ... 85 °C
		Stock	-40 ... 85 °C

<sup>1</sup> with optional analogue output max. 1 contact possible

<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

<sup>3</sup> Parameters can be programmed by customer either with the programming kit CIS Set (consisting of: PC interface "Adapt 3", power supply, cable connections and configuration software "P-Set") or with the programming device P6. CIS Set and P6 are not part of supply and have to be ordered separately. For more detailed information see last page of this data sheet.

### Dimensions



### Materials

Pressure port	aluminium
Housing	PA 6.6 black
Seals	NBR
Sensor	silicon, RTV
Media wetted parts	pressure port, seals, sensor

### Miscellaneous

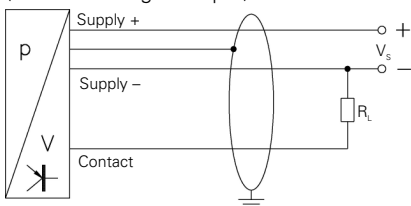
Media	compressed air, non-aggressive gases
Weight	approx. 25 to 35 g
Installation position	any
Ingress protection	IP 54

### Pin configuration

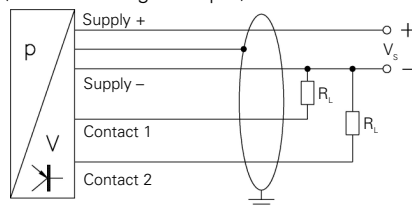
Electrical connection	M8x1 (4-pin) 1 contact	M8x1 (4-pin) 2 contacts	M8x1 (4-pin) 1 contact, 1 analogue output	cable colours <sup>4,5</sup> (DIN 47100)
Supply +	1	1	1	white
Supply -	3	3	3	brown
Signal +	-	-	2	green
Contact 1	4	4	4	grey
Contact 2	-	2	-	pink
Ground	-	-	-	cable shield

### Wiring diagrams

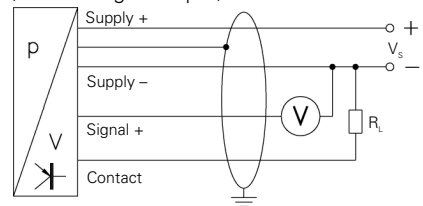
1 contact  
(without analogue output)



2 contacts  
(without analogue output)



1 contact  
(with analogue output)



<sup>4</sup> cable outlet on request

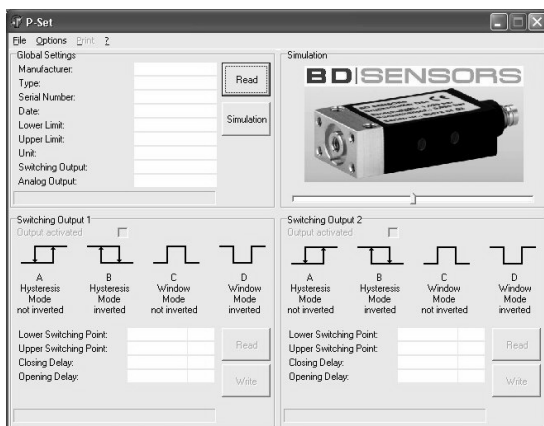
<sup>5</sup> if the electrical connection is a mounted cable by factory

The Pressure Switch can be configured via programming kit CIS Set and PC or via programming device P6. For example setting of following parameters is possible:

- ▶ switching mode (hysteresis or window mode)
- ▶ inversion of contact
- ▶ switch on / lower switching point
- ▶ switch off / upper switching point
- ▶ switch on / switch off delay

The programming adapter is part of the programming kit CIS Set containing also power supply, cable, and a CD-ROM with the configuration software P-Set.

All cables required for connecting the pressure switch have to be plugged to the programming adapter. The user only needs Windows® PC with serial interface.



Installation of configuration software P-Set is very easy. P-Set is running on all Windows® PC's (95, 98, ME, 2000, NT, XP). After software installation the adapter only has to be connected with the serial interface of the PC, the power supply, and the pressure switch. You can find more information on the software functions in the software manual.

Alternatively to programming via PC BD SENSORS offers the programming device P6. It is simply plugged between DS 4 and the female connector. Via two push-buttons and a 4-digit LED display all possible settings can be made.



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