DS 6

Industrial Pressure Switch with Ceramic Sensor

- pressure port with flush stainless steel diaphragm
- thickfilm ceramic sensor
- for viscous and paste-like media
- nominal pressure ranges from 0 ... 1 bar up to 0 ... 400 bar

The electronic pressure switch DS 6 has been designed for universal use.

Media wetted materials are stainless steel for the pressure port, ceramics Al_2O_3 for the pressure sensor, and FKM or NBR for seals. These materials have been chosen particularly in order to achieve high media compatibility already in standard version.

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

The 1 or 2 freely programmable contacts whose status are indicated by different coloured LED's can be configured quickly and comfortable either by programming kit CIS Set or via the programming device P6.

Preferred areas of use are:

- machine building industry
- measurement and controls
- hydraulics
- oxygen application

Characteristics

- stainless steel pressure port
- electrical connection M12x1 5-pin
- diverse special versions, e.g. "oil and fat free" for oxygen applications
- option: oxygen application
- customer specific versions:
  - special pressure ranges
  - variety of electrical and mechanical connections
  - other versions on request

CE

DS 6 Industrial Pressure Switch

TECHNICAL DATA

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
Permissible overpressure [bar]	7	12	25	50	120	250	400	600

Supply	
Supply voltage V_S	12 ... 30 V_{DC}
Current consumption	max. 14 mA (without contacts)

Contacts		
Number	standard: 1	optional: 2
Type	PNP	
Switching performance	max. 300 mA, short-circuit proof	
Accuracy of contacts	IEC 60770 [1]: ≤ ± 1 % FSO	BFSL: ≤ ± 0.5 % FSO
Repeatability	≤ ± 0.2 % FSO	
Status indication	SP 1: green	SP 2 : yellow
Switching function [2]	standard: n/o	optional: n/c
Switching mode [2]	standard: hysteresis mode	optional: window mode
Switch on point [2]	standard: factory setting 80 % FSO others: specify on order; adjustable range 0 ... 100 % FSO	
Switch off point [2]	standard: factory setting 75 % FSO others: specify on order; adjustable range 0 ... 100 % FSO	
Switch on / switch off delay [2]	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 x 10^6	

Thermal effects	
Temperature error for offset and span	≤ ± 0.3 % FSO / 10 K
in compensated range	-25 ... 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)
Shock	100 g / 11 ms

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

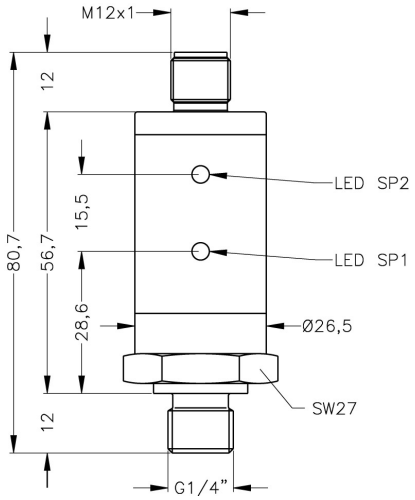
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

[2] 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 or P6 are not part of supply and have to be ordered separately. For more detailed information see last page of this data sheet.

TECHNICAL DATA

Dimensions / Connections

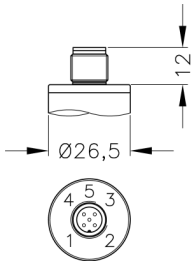
Mechanical connections



G1/4“ DIN 3852

M10x1; M12x1; M12x1.5 (up to 100 bar)

Electrical connections [3]



M12x1 5-pin

Materials

Pressure port / housing	stainless steel 1.4305 (303) / stainless steel 1.4305 (303), POM black
Seals	P_N < 100 bar: FKM / P_N ≥ 100 bar: NBR / others on request
Diaphragm	ceramics Al_2O_3 96 %
Media wetted parts	pressure port, seals, diaphragm

Miscellaneous

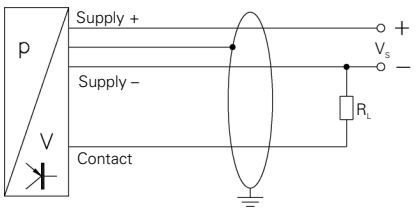
Optionally up to 200 bar: oxygen application	for $P_N \leq 50$ bar: O-ring in V747-75 (with BAM-approval); permissible maximum values are 40 bar / 130° C and 50 bar / 100° C for $P_N > 50$ bar: O-ring in FKM 90 (approved by the scientific coal research institute in Ostrava – CZ up to max. 95 °C and 215 bar)
Weight	approx. 90 g
Installation position	any
Ingress protection	IP 67

Pin configuration

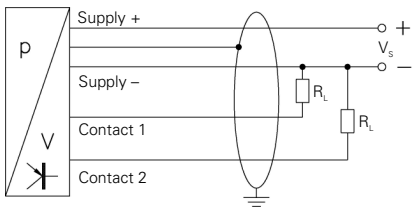
Electrical connection	M12x1 (5-pin)	cable colours [3,4] (DIN 47100)
Supply +	1	white
Supply –	3	brown
Contact 1	4	grey
Contact 2	5	pink
Ground	plug housing	cable shield

Wiring diagrams

1 contact



2 contacts



[3] cable outlet on request

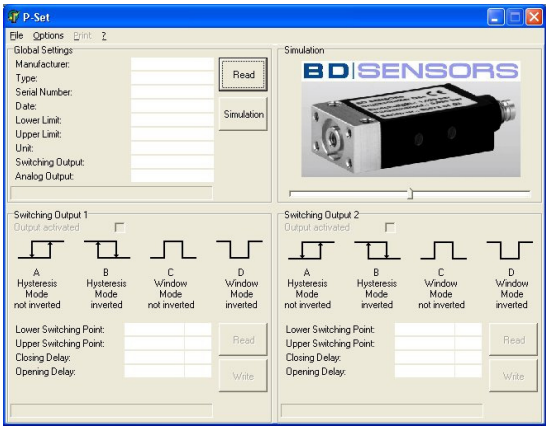
[4] if the electrical connection is a mounted cable by factory

CONFIGURATION

The Pressure Switch can be configured via programming kit CIS Set and PC or via the 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 6 and the female connector. Via two push-buttons and a 4-digit LED display all possible settings can be made.

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