

## Electronic pressure switch Series

## DS 4

ADZ-SML-50.3 or 50.4

**Pressure range:** 600 mbar up to 2000 bar (0,06 MPa up to 200 MPa)  
**Supply voltage:** 10...30 V  
**Operation temperature:** - 20 °C up to + 85 °C  
**Output properties:** npn or pnp: max. 1,7 A DC

- Resistant to pressure peaks
- shockproof and vibrationproof
- insensitive to temperature shock
- Protection class IP 67

### Construction

- Stainless steel membrane
- Wetted material stainless steel
- Poly-Si-on SiO<sub>2</sub> (thin film resistance)
- Operation temperature: - 40 °C up to + 105 °C optional
- Accuracy: < 1,5 % Standard/ Total error
- Housing diameter : Ø 22 mm
- Electrical connection Series: Binder 723 \*)
- Process connection: G ¼ " Form E \*)
- Weight: ca. 100 g

### Application / possible uses

- |  |  |
|--|--|
| <input type="checkbox"/> Hydraulic systems | <input type="checkbox"/> Semiconductor industry                  |
| <input type="checkbox"/> Pneumatics        | <input type="checkbox"/> Environmental technical                 |
| <input type="checkbox"/> Industrial robots | <input type="checkbox"/> Motor vehicle techniques                |
| <input type="checkbox"/> Refrigeration     | <input type="checkbox"/> Construction and agricultural equipment |
| <input type="checkbox"/> Heating plants    |  |
| <input type="checkbox"/> Process control   |  |



\*) Other on request

### Description

The electronic pressure switch DS 4 is based on the proven ADZ stainless-steel sensor elements which guarantee high stability and media compatibility as well as vacuum tightness. The entire signal processing is effected by a special ADZ-specific "mixed-signal" ASIC which carries out both characteristic curve linearization and temperature compensation and break point monitoring as well as various other tasks. By means of the procedure selected, high precision is achieved over a large temperature range (**Total Error < 1 % F.S.**). **Any parameters to be adjusted by the user may be configured by means of the PC programming adapter and simple software. Application temperature range -20 °C ...+85 °C;** model versions for the automotive branch are also available. Precision and reproducibility of the switch lie at a maximum of 0,5 % of the final value over the entire temperature range.

- **Allocation of 2 or 4 break points for one output**

This allows either the configuration of a normal pressure with hysteresis function or the determination of a pressure range to be monitored. The break points can freely be selected at a resolution of 0,5 % of the final value.

- **Allocation of additional signal delay**

This function allows adjustment of a delay for the output in order to, for example, avoid frequent change-over of the output in the case of unstable pressure values. Adjustments can be made within a range of 10 ms up to 600 s.

- **Selection NO or NC switch;** by means of this option, the contact behaviour of the switch is defined. The electrical output itself consists of an excessive-load and short-circuit resistant semi-conductor output, which is available as either a pnp or npn version.

## Technical information

## Type: DS 4

Parameter	Min	Type	Max	Unit	Annotation
Pressure range			250	bar	1
Kind of pressure		gauge			
<b>Switch function</b>	<b>1 pnp opener (cf. Survey Data Sheet)</b>				
Range of hysteresis	0,5			% FS	
Resolution adjustable range and hysteresis	0,5			% FS	
(Default) programming: Switch "OFF" Switch "ON"			130 40	bar bar	
Programming modi:	Discriminator and window discriminator function (cf. System Description and Configuration)				
Total error (-20 °C to 65 °C)			0,5	% FS	2
Supply voltage $U_V$ (dc)	10		30	V	3
Power consumption			30	mA	
Turn-on voltage	identical with supply voltage				
Turn-on power			1,7	A	4
Insulating resistance	100			M	5
Range of excess load			2,0-fold		
Bursting pressure	3,0-fold				
Range of operating temperature	-20		85	°C	
Storage temperature	-40		125	°C	
Weight			approx. 100	g	
Position when being installed			any		6

**Annotations:**

1. All parameters are guaranteed via the range of operational temperature and operational pressure, if not particularly stated otherwise.
  2. Includes impacts of non-linearity, hysteresis, repeatability, calibrating, errors of zero point and ranges via the range of operational temperature.
  3. Safe against pole mismatch.
  4. Short-circuit-proof against operational voltage and mass, overload-proof.
  5. Measured between contacts and sensor housing (  $U_{dc}$  50 V for one minute)
  6. Torque at installation max. 25 Nm.
- Parts contacted by the measuring medium are made of 17-4 PH and stainless steel of the 300 series. No internal O rings and no silicon oil Florentine flask.
  - Dead volume approx. 100 mm<sup>3</sup> and control volume approx. <1mm<sup>3</sup>.
  - Piezoresistive measuring principle, signal amplification and signal conditioning by means of ASIC.
  - Protection class IP67 in contacted condition.
  - Medium connection G1/4 Form E.
  - Electrical connection flange plug S723 (Fa. Binder), 1: GND, 3: output, 5: +U<sub>v</sub>, 2,4: Programming inputs (not to be connected in operation!).

- Mistakes and changes in the sense of technical improvements reserved. -

**ADZ NAGANO GmbH**  
**Gesellschaft für Sensortechnik**  
 Bergener Ring 43  
 D-01458 Ottendorf-Okrilla

Tel. + 49 (0) 35 205 - 59 69 30  
 Fax: + 49 (0) 35 205 - 59 69 59

eMail: arndt@adz.de  
 Internet: www.adz.de

## Exemples for configuration

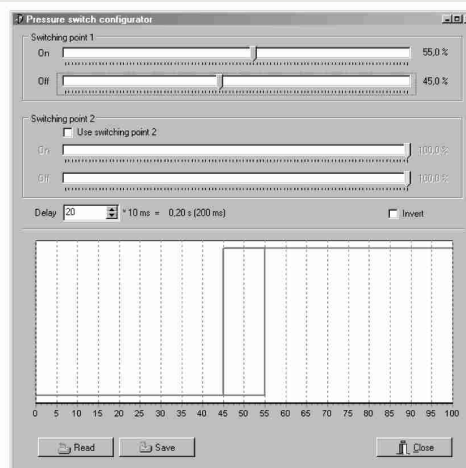
### NO- pressure switch

ON at: 55 % FS

OFF at: 45 % FS

hysteresis: 10 %

delay: 200 ms



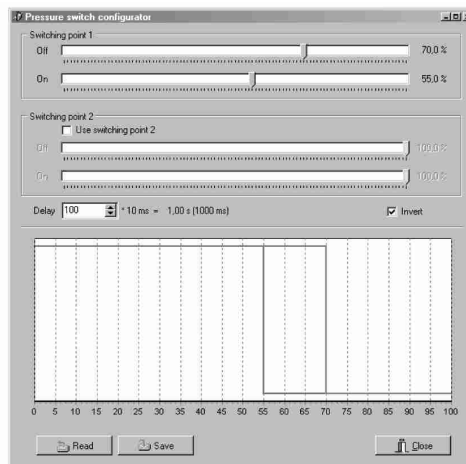
### NC- pressure switch

OFF at: 70 % FS

ON at: 55 % FS

hysteresis: 15 %

delay: 1 s



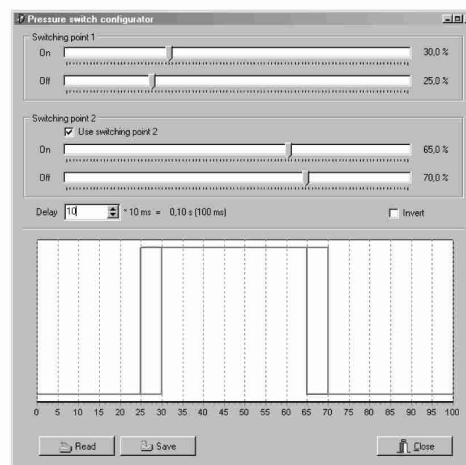
### switch for pressure- range

ON1 at: 30 % FS  
OFF 1 at: 70 % FS

ON2 at: 65 % FS  
OFF2 at: 25 % FS

hysteresis: 10 %

delay: 100 ms



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05/06