

# The Flexible Switch

# DS5

## Electronic Pressure Switch optional programmable

### Main features

- Measuring ranges -1...0 bar; 0...1 bar and to 0...5000 bar
- Output signals npn or pnp (max. 1 A)
- Media temperature range -40°C to 125°C
- Accuracy 0.5 % at RT
- setpoint can be set on approx. 10000 discrete counts of the selected nominal pressure range
- Compact and robust stainless steel design also in silicon and titanium
- Degree of protection IP65 to IP69K

### Applications

- General industrial applications
- Automotive engineering
- Hydraulics and Pneumatics
- Plant and Mechanical engineering
- Automation technology
- Refrigeration and Environmental technology
- special configuration for rail way (see AppNote – [www.adz.de](http://www.adz.de))

### Description

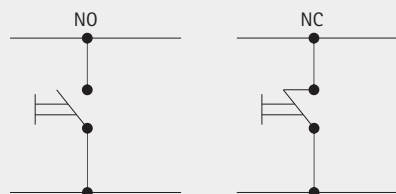
The pressure switch DS5 is electronically controlled. It provides flexible programming options – factory set or programming interface for the customer. The hardware needed for programming can be purchased from ADZ. There is no real hysteresis on the electrical switch as there is on a mechanical switch – at least the reset point can be programmed as needed and independent from the nominal pressure range.

The robustness is identical to our SML product family and the DS5 provides the same range of options and flexibility regarding pressure and electrical interface. This qualifies the DS5 for any applications that our other products can serve.

#### Choice of the switching functions

- Normally open (NO)
- Normally closed (NC)
- Window modus, as NO and NC

These switching functions serve to define the contact behaviour of the switch.



### Specifications

#### PRESSURE RANGE

Measuring range*	p [bar]	0,2	0,6	1,0	1,6	2,5	4,0	6,0	10,0
Overload pressure	p [bar]	0,5	6	6	6	6	10	20	20
Burst pressure	p [bar]	1,0	9	9	9	9	15	30	30
Measuring range*	p [bar]	16	20	25	40	60	100	160	200
Overload pressure	p [bar]	40	40	100	100	200	200	400	400
Burst pressure	p [bar]	60	60	150	150	300	300	600	600
Measuring range*	p [bar]	250	400	600	1000	1600	2000	4000	5000
Overload pressure	p [bar]	750	750	840	1200	2400	2400	5000	6000
Burst pressure	p [bar]	1000	1000	1050	1500	3000	3000	6000	7000

#### ELECTRICAL PARAMETER

Electrical connections		3-wire		4-wire		5-wire
Number of switching outputs		1 (npn oder pnp)		2xPNP / 1xPNP+programming**		2xPNP+1x programming**
Function		opener / closer / window mode*** – applies to all variants				
Switching-/supply voltage	U [V <sub>DC</sub> ]	10...32		10...32		10...32
Switching current max.	I [A]	1		1		1
Resolution	steps	~ 10000		~ 10000		~ 10000
Time lag - ON	t [s]	programmable; factory set: 1 ms		** for programming a ServiceBox and		
Time lag - OFF	t [s]	programmable; factory set: 1 ms		PC-Software are needed		
Withstand voltage	U [V <sub>DC</sub> ]	50		*** in window-mode only switch #1 is active		

#### ACCURACY

		for pressure ranges ≤ 2000 bar	for pressure ranges <1bar and >2000 bar
Accuracy @ RT	% of the range	≤ 0,50**** option ≤ 0,25	≤ 1,00****
Stabilität/Jahr	% of the range	≤ 0,15	**** incl. nonlinearity, hysteresis, repeatability, zero-offset- and final-offset (acc. to IEC 61298-2); Accuracy refers here to nominal pressure range.

#### ACCEPTABLE TEMPERATURE RANGES

Media	T [°C]	-40...125	
Ambience	T [°C]	-40...105	
Storage	T [°C]	-40...125	
Compensated range*****	T [°C]	-20...85	***** The mean TC are relevant for the compensated range only, outside the compensated range the total error statements apply.
Mean TC offset	% of the range	≤ 0,15 / 10K	
Mean TC range	% of the range	≤ 0,15 / 10K	
Total error	% of the range	-40°C 2,00%	
	% of the range	105°C 2,00%	

#### MECHANICAL PARAMETER

Parts in contact with the measuring medium*		stainless steel, silicon and titanium	
Housing*		stainless steel, silicon and titanium	
Weight	m [g]	80-120	depending on design
Shock resistance/drop	g	1000	acc. to DIN EN 60068-2-32 – free fall
Vibration resistance	g	20	acc. to DIN EN 60068-2-6 – vibration (sinusoidal)
Shock resistance/constant	g	50	acc. to DIN EN 60068-2-27 – shock resistance
Approvals		CE Declarations of conformity 2014/30/EU	
		Note: Not every specification listed here applies to all configurations.	
IP system of protection IEC 60529 up to IP69K		IP rating applies with appropriate mating connector only.	

**Configurations -examples-** **DS5 with M12x1 (S763)**



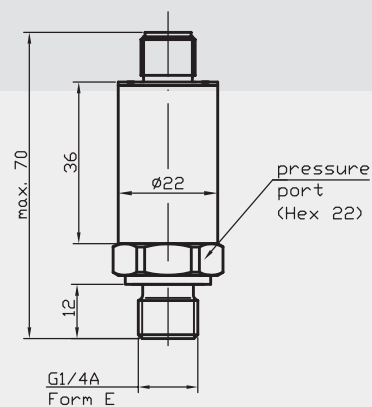
MVS/A



MVS/C

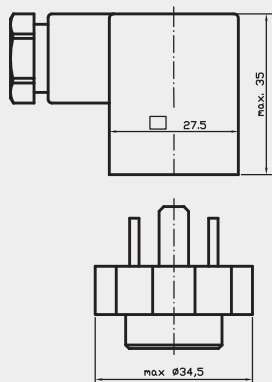


M12x1  
(S 763)

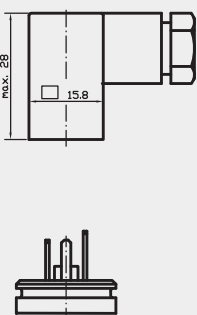


**Connectors\* -examples-**

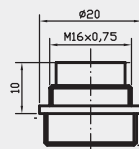
MVS/A  
DIN EN 175301-803  
(IP65)



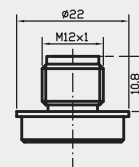
MVS/C  
DIN EN 175301-803  
(IP65)



male socket  
M16x0,75 (S 723)  
(IP67)

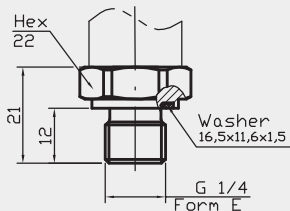


male socket  
M12x1 (S 763)  
(IP67)

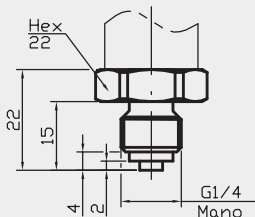


**Pressure Connections\* -examples-**

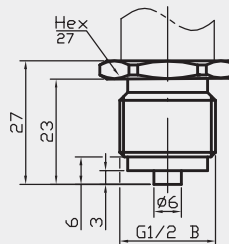
G 1/4 A; DIN 3852; Form E



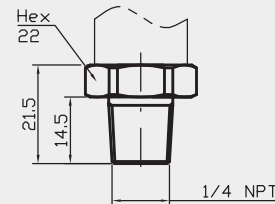
G 1/4 B



G 1/2 B



1/4 NPT

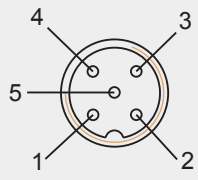
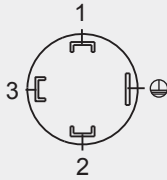
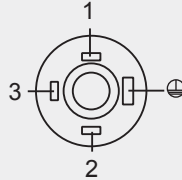


\* customer specific configurations available

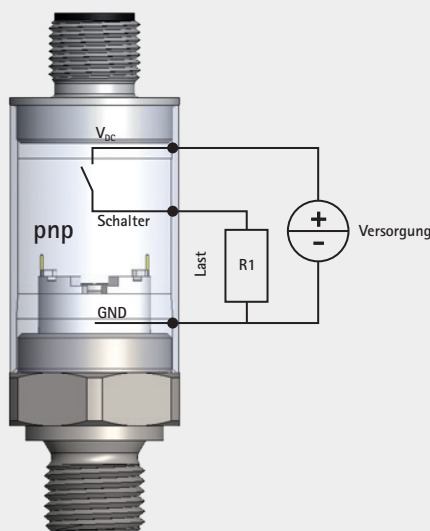
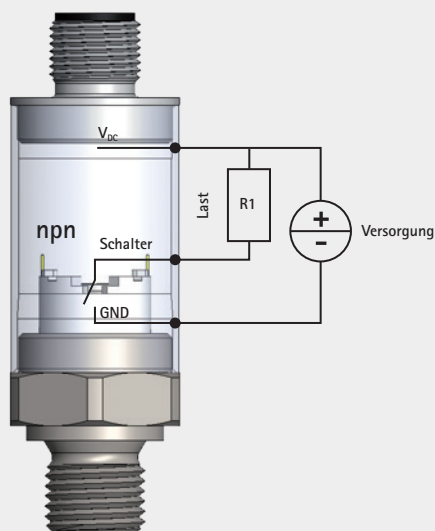
# DS5

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### Electrical Configuration\*

Plug M12x1 (S 763)	Cable	DIN EN 175301-803-A	DIN EN 175301-803-C
			
1: UB+ 2: SW1 3: UB- 4: SW2 5: prog	red: UB+ black: UB- white: SW1	1: UB+ 2: UB- 3: SW1	1: UB+ 2: UB- 3: SW1

nc =  
not connected



\* custom-made adjustments are possible

### Product line

DS5	Electronic Pressure Switch	SMC	Pressure Transmitter with CANopen Interface and J1939
DPSX9I	Intrinsically Safe Electronic Pressure Switch for Current	SME	Pressure Transmitter in Miniature Design
DPSX9U	Intrinsically Safe Electronic Pressure Switch for Voltage	SMF	Pressure Transmitter with Flush Diaphragm
PS1/17	Level Sensor	SMH	High Pressure Transmitter
PSX2	Intrinsically Safe Level Sensor	SML	Pressure Transmitter for Industrial Application
SH2	Pressure transmitter for hydrogen applications	SMO	Pressure Transmitter in Mobile Hydraulics
SHP	High Precision Pressure Transmitter	SMX2	Intrinsically Safe Pressure Transmitter for Industrial Application
SIS	Low Pressure Transmitter in Short and Compact Design	TPSE	Multi-Function Transmitter for Pressure and Temperature – external sensor
SIL	Low Pressure Transmitter for Industrial Application	TPSI	Multi-Function Transmitter for Pressure and Temperature – internal sensor
SKE	High Temperature Pressure Transmitter with Detached Electronics	TS1	Temperature transmitter for industrial application
SKL	High Temperature Pressure Transmitter with Cooling Fins		

