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ASZ 3420 r

ELECTRNONIC PRESSURE SWITCH WITH SPDT RELAYS

DESCRIPTION

ASZ 3420 r is an electronic pressure switch with traditional SPDT relay outputs. High quality silicon piezoresistive sensor and a microcontroller based electronic board provide a highly flexible and configurable solution for local equipment control. User is able to choose from a wide variety of relay triggering algorithms and adjust setpoints and hysteresis values (*). Additionally, an industry standard 4-20 mA analog output is provided, thus ASZ 3420 r is a pressure switch and a transmitter at the same time, making this model stand out in comparision to conventional mechanical switches.

SPECIFICATIONS

Pressure ranges: 40 mbar up to 600 bar

Setpoints, hysteresis: adjustable (*)

Basic accuracy: ±0.25%

Relay outputs: SPDT, 2 pcs

Analog output: 4...20 mA (3-wire);

Sensor: silicon piezoresistive

Pressure port: M20x1.5; G1/2”; G1/4”; 1/4” NPT etc.

Media temperatures: -40...+125 °C

Ambient temperatures: -40...+70 °C

APPLICATIONS

Industrial equipment protection

Pressure monitoring and control

Tank liquid level maintaining

Pumps, fans local control

(*) set points can be set either by factory or by user via PCON 200 adapter (sold separately)

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TECHNICAL SPECIFICATIONS

MEASURING RANGES

Pressure range, bar Gauge	Overpressure, bar	Burst pressure, bar	Pressure range, bar Gauge	Overpressure, bar	Burst pressure, bar
0...0.04	0.3	1.0	0…6.0	15	20
0...0.06	0.3	1.0	0…10	30	40
0...0.10	1.0	1.5	0…16	60	80
0…0.16	1.0	1.5	0…25	60	80
0…0.25	1.0	1.5	0…40	100	150
0…0.40	1.0	1.5	0...60	100	150
0…0.60	3.0	4.0	0...100	150	230
0…1.0	3.0	4.0	0...160	300	450
0…1.6	6.0	8.0	0...250	530	780
0…2.5	6.0	8.0	0...400	1050	1580
0…4.0	15	20	0...600	1050	1580

PERFORMANCE	P > 0.4 bar	P ≤ 0.4 bar
Accuracy, % of span*	≤ ±0.25	≤ ±0.5
Temperature effect, (% of span / 10 °C)	≤ ±0.1	≤ ±0.2
Compensated range	-20…+80 °C	0…+80 °C
Power supply effect (rated supply voltage - 24 V ± 10%)	≤ ±0.05% of span / 10 V	
Load resistance effect	≤ ±0.05% of span / kOhm	
Long term stability	≤ ±0.1% of span / year	
Startup time (after power up)	less than 0.2 s	
Responce time (10...90 %)	≤ 60 ms	

* Accuracy includes non-linearity, hysteresis and non-repeatability.

OPERATING CONDITIONS

Medium temperature (depends on seals)	-40...+125 °C
Ambient temperature	-40…+70 °C
Storage temperature	-40...+70 °C
Vibration resistance	10 - 50 Hz, 0.35 peak to peak displacement
Shock resistance	10 g
Pressure sensor service life	> 100×10^6 cycles
Switch contacts service life (electric), load dependent:	
- AC:	
125 V: 3 A (NO)/3 A (NC)	200000
250 V: 5 A (NO)	50000
250 V: 3 A (NC)	100000
- DC:	
30 V: 5 A (NO)/3 A (NC)	100000

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MECHANICAL SPECIFICATIONS

Pressure port material	stainless steel 316L (1.4404)
Housing material	stainless steel 303 (1.4305)
Seal	EPDM (-40…+125 °C), NBR (-25…+100 °C), FKM (-25…+125 °C), welded (-40…+125 °C)
Diaphragm	stainless steel 1.4435 (316L)
Wetted parts	Diaphragm, pressure port, seals
Pressure port	M20x1.5 DIN 3852; M20x1.5 EN 837; G 1/2“ DIN 3852; G 1/2“ EN 837; G 1/4“ DIN 3852; G 1/4“ EN 837; 1/2“ NPT; 1/4“ NPT
Electrical connection	Electrical connection M12x1 (5 pin) – power, output signal; M12x1 (4 pin) - relays
Cable diameter	6...8 mm
Wire cross section	0.75 mm
Ingress protection	IP65
Dimensions, mm, max	Ø50×121
Weight, max	0.25 kg

ELECTRICAL SPECIFICATIONS

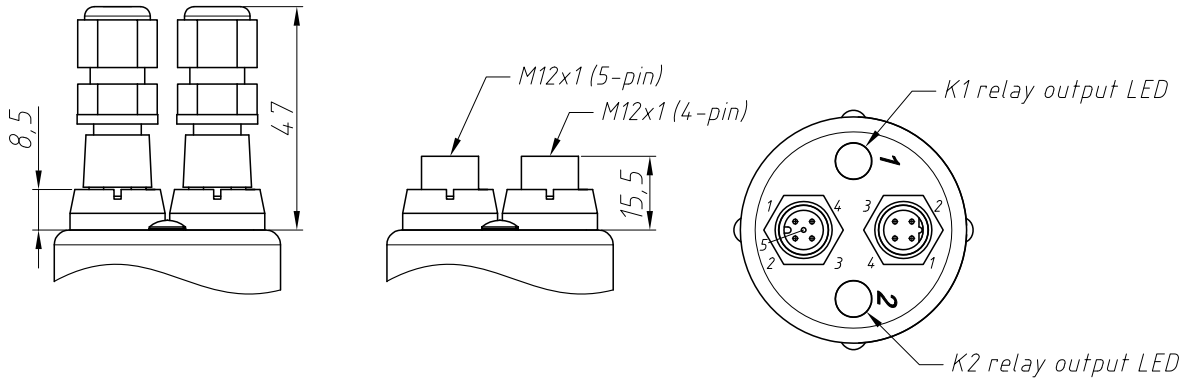
Power supply (U_S), V	from 12 to 36 (rated 24 V)
Power consumption, max	100 mA
Analog output:	
Number of analog measuring channels	one
Output signal	4...20 mA / 3-wire
Emergency output mode	2 mA and 22 mA
Load resistance (R_L), Ohm (±20 %)	(U_S -5) / 0.025
Galvanic isolation resistance, MOhm, min.	100 (at a voltage of 100 V)
Relay outputs (SPDT):	
Number of relay outputs	from 1 to 2 (independent)
Relay contact type (version chosen when ordering)	normally closed (NC) or normally open (NO)
Max switching voltage	250 V (AC) 30 V (DC)
Max switching current (contact type)	5 A (NO)/3 A (NC)
Rated load: - DC, voltage of 30 V - AC, voltage of 250 V	 5 A (NO)/3 A (NC) 5 A (NO)/3 A (NC)
Relay outputs operating modes (configurable)	hysteresis/window/pulse
Relay outputs accuracy	– for P>0.4 bar: ±0.25% of span – for P≤0.4 bar: ±0.5% of span
Switching frequency, max	5Hz
Relay delay (programmable)	0...650 s
Dielectric strength, V	1000 (VAC, 50 - 60 Hz for 1 min)
Galvanic isolation resistance to case, min.	100 MOhm
UART interface (modified semiduplex):	
Number of interfaces	1
Data transfer rate, bit/s	9600
Protocol	P-Conf
Communication cable length, m, max	5

ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

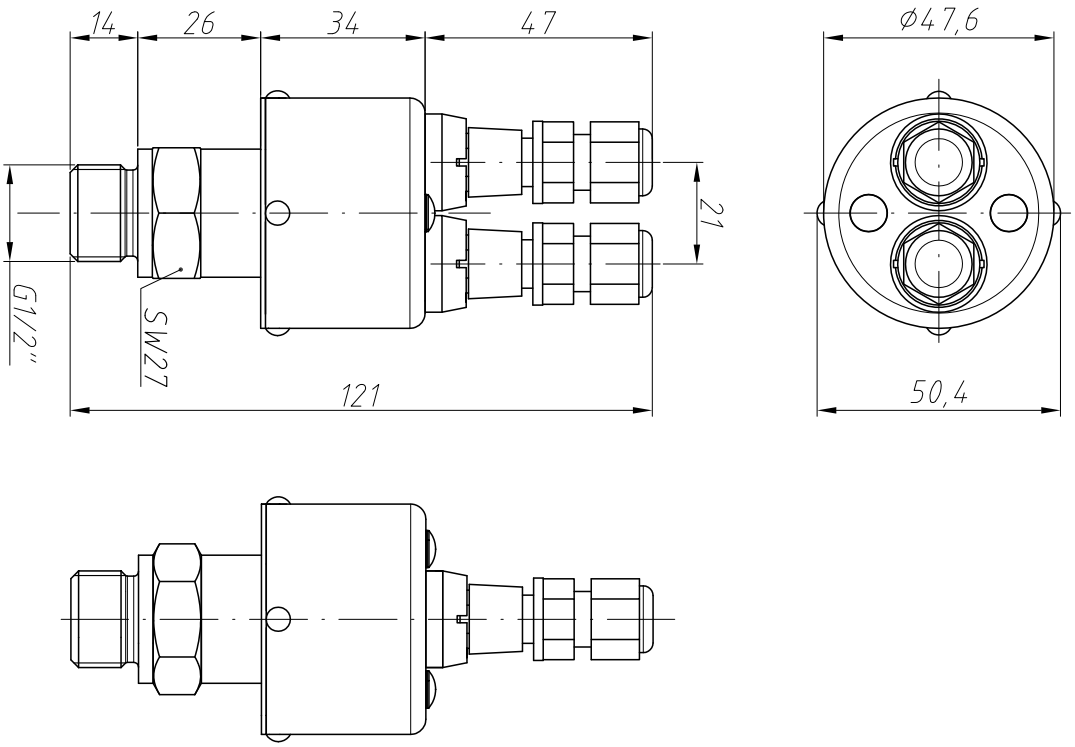
M12x1 (4 pins):		Connector pins
Relay 1	K1.1	1
	K1.1	4
Relay 2	K2.1	2
	K2.1	3
M12x1 (5 pins):		
Power +	U_S	1
Power -	COM	2,3
Communication interface	DIO	4
Analogue output	I_{out}	5

ELECTRICAL CONNECTIONS, DIMENSIONS (mm)

M12x1

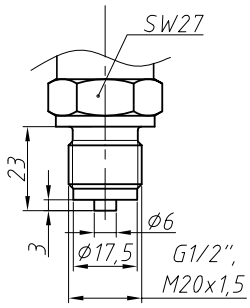
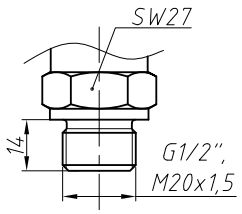
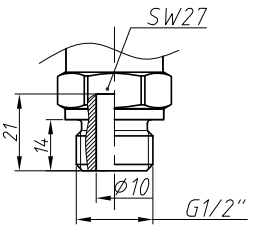
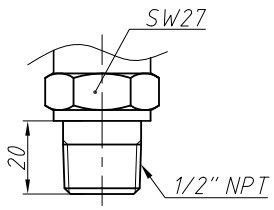
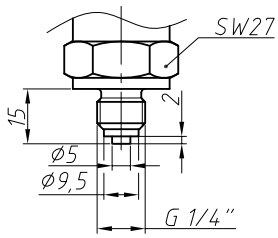
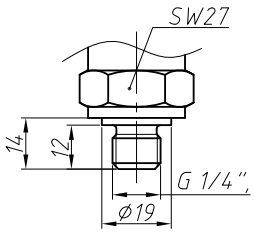
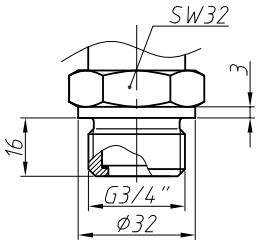
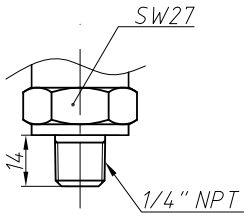


DIMENSIONS (mm)



Housing of transmitter with welded sensor is 8 mm longer

PRESSURE PORTS, DIMENSIONS (mm)

M20x1.5; G1/2” EN 837	M20x1.5; G1/2” DIN 3852	G1/2” DIN 3852 open port	1/2” NPT
			
G1/4” EN 837	**G1/4” DIN 3852**	**G3/4” DIN 3852 flush diaphragm**	**1/4 NPT**
			

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ORDERING CODE

ASZ 3420 r	-X	-X	-XXXX	-X	-XX	-XX	-X	-XXX	-X	-XX
MEASUREMENT TYPE										
Gauge	G									
Absolute	A									
Vacuum, LRL = -1 bar	V									
UNIT OF MEASUREMENT										
bar		B								
kg/cm²		S								
mWC		W								
kPa		K								
MPa		M								
Other (specify when ordering)		X								

UPPER RANGE LIMIT (URL)

bar, kg/cm²		mWC		kPa		MPa	
0.04	0040	0.4	0400	4.0	4000		
0.06	0060	0.6	0600	6.0	6000		
0.10	0100	1.0	1000	10	1001		
0.16	0160	1.6	1600	16	1601		
0.25	0250	2.5	2500	25	2501		
0.40	0400	4.0	4000	40	4001		
0.60	0600	6.0	6000	60	6001		
1.0	1000	10	1001	100	1002	0.1	0100
1.6	1600	16	1601	160	1602	0.16	0160
2.5	2500	25	2501	250	2502	0.25	0250
4.0	4000	40	4001	400	4002	0.4	0400
6.0	6000	60	6001	600	6002	0.6	0600
10	1001	100	1002	1000	1003	1	1000
16	1601	160	1602			1.6	1600
25	2501	250	2502			2.5	2500
40	4001	400	4002			4	4000
60	6001					6	6000
100	1002					10	1001
160	1602					16	1601
250	2502					25	2501
400	4002					40	4001
600	6002					60	6001
Other	XXXX	Other	XXXX	Other	XXXX	Other	XXXX

ACCURACY										
0.25% (P > 0.4 bar) (standard)			C							
0.50% (P ≤ 0.4 bar) (standard)			D							
Other (specify when ordering)			X							
NUMBER OF SWITCH OUTPUTS / CONFIGURATION										
1 relay output (NO)				10						
1 relay output (NC)				11						
2 relay outputs (NO/NO)				20						
2 relay outputs (NO/NC)				21						
2 relay outputs (NC/NC)				22						
ELECTRICAL CONNECTION										
M12x1, straight connector					30					
Other (specify when ordering)					XX					
OUTPUT SIGNAL										
4…20 mA / 3-wire						B				
Other (specify when ordering)						X				

ORDERING CODE (CONTINUED)

ASZ 3420 r	-X	-X	-XXXX	-X	-XX	-XX	-X	-XXX	-X	-XX
PRESSURE PORT										
M20x1.5 DIN 3852 (standard)								200		
M20x1.5 EN 837 (standard)								201		
G1/2” DIN 3852 (standard)								720		
G1/2” EN 837 (standard)								721		
G1/4” DIN 3852 (standard)								740		
G1/4” EN 837								741		
G3/4” DIN 3852 flush diaphragm								735		
G1/2” DIN 3852 open port								726		
1/4” NPT								840		
1/2” NPT								820		
Other (specify when ordering)								XXX		
SEALS										
FKM (-25...+125 °C) (standard)									F	
NBR (-25...+100 °C)									N	
EPDM (-40...+125 °C)									E	
Welded sensor (no seals -40...+125 °C)									W	
Other (specify when ordering)									X	
VERSION										
Standard										00
Other (specify when ordering)										XX

Example: ASZ 3420 r-G-D-6002-D-20-30-B-200-W-00

ACCESSORIES

				
DZ 10 Pressure snubber	PZ 1024 Power supply unit	PCON 200 Programming adapter	P-conf Software	

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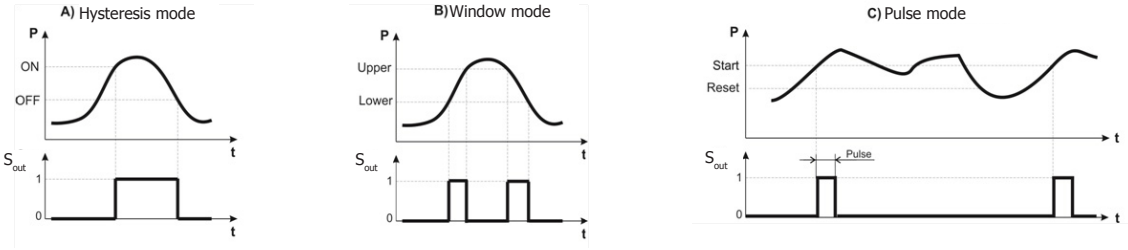
PRESSURE SWITCH ORDER FORM

ORDERING CODE

	-X	-X	-XXXX	-X	-XX	-XX	-X	-XXX	-X	-XX
ASZ 3420 r										

CONFIGURABLE FEATURES AND FUNCTIONS

Relay outputs operation logic (S_{out}) depending on input pressure (P).



Note:
The default mode is A.
S_{out} at „0“ means that the relay output state corresponds to that specified when ordering (NO or NC). S_{out} at „1“ means the switching output state changed.

Relay outputs operating mode parameters (one mode selected):

Mode	Parameter	Factory settings for relay K1 and K2	Ordered settings	
			Relay K1	Relay K2
A: Hysteresis Mode	Level ON	55 % of span		
	Level OFF	50 % of span		
	Delay ON	0 ms		
	Delay OFF	0 ms		
B: Window Mode	Upper level	–		
	Lower level	–		
	Delay Upper	–		
	Delay Lower	–		
C: Pulse Mode	Start level	–		
	Reset level	–		
	Delay Pulse	–		
	Pulse width, must be ≥20 ms	–		

Customer		
Order number:		
Company:		
Phone / fax / e-mail:		
Contact person	Position:	
	Full name:	