

APZ 3420

STANDARD INDUSTRIAL PRESSURE TRANSMITTER



DESCRIPTION

APZ 3420 is our flagship general purpose industrial pressure transmitter. High quality silicon piezoresistive sensor with a stainless steel diaphragm, versatile design and wide spectrum of variations make APZ 3420 a perfect fit for virtually any industrial application.

SPECIFICATIONS

Pressure ranges: 40 mbar to 600 bar

Basic accuracy: $\pm 0.25\%$

Outputs: 4...20 mA (option – Ex ia); 0...20 mA; 0...10 V; 0...5 V; HART®; RS-485 / Modbus RTU; other

Sensor: silicon piezoresistive

Pressure port: G1/2"; G1/4"; 1/2" NPT; 1/4" NPT; M20x1.5; other

Media temperature: -40...+125 °C

Ambient temperature: -40...+85 °C

Optional: field housing with/without graphics display

APPLICATIONS

General industrial applications

Process automation

Hydraulics and pneumatics

Test equipment

Liquid level monitoring

TECHNICAL SPECIFICATIONS

MEASURING RANGES*

Pressure range, bar		Overpressure, bar	Burst pressure, bar	Pressure range, bar		Overpressure, bar	Burst pressure, bar
Gauge	Absolute			Gauge	Absolute		
-1...0	-	3.0	4.0	0...6.0	0...6.0	15	20
0...0.04	-	0.3	1.0	0...10	0...10	30	40
0...0.06	-	0.3	1.0	0...16	0...16	60	80
0...0.10	0...0.10	1.0	1.5	0...25	0...25	60	80
0...0.16	0...0.16	1.0	1.5	0...40	0...40	100	150
0...0.25	0...0.25	1.0	1.5	0...60	0...60	100	150
0...0.40	0...0.40	1.0	1.5	0...100	0...100	150	230
0...0.60	0...0.60	3.0	4.0	0...160	0...160	300	450
0...1.0	0...1.0	3.0	4.0	0...250	0...250	530	780
0...1.6	0...1.6	6.0	8.0	0...400	0...400	1050	1580
0...2.5	0...2.5	6.0	8.0	0...600	0...600	1050	1580
0...4.0	0...4.0	15	20				

* The transmitter can be calibrated on three pressure ranges (user-selectable via ZCON 100 configurator). The lowest range should be at least 1/5 of the highest range.

PERFORMANCE	P > 0.4 bar	P ≤ 0.4 bar
Accuracy, % of span*	≤ ±0.25 (standard) / 0.20 (optional)	≤ ±0.5 (standard)
Temperature effect (% of span / 10 °C)	≤ ±0.1	≤ ±0.2
Compensated range	-20...+80 °C	0...+80 °C
Compensated range (optional)	-40...+60 °C	-40...+60 °C
Power supply effect	≤ ±0.05% of span / 10 V	
Load resistance effect	≤ ±0.05% of span / kOhm (transmitters with current output)	
Long-term stability	≤ ±0.1% of span / year	
Response time (10...90%)	≤ 1 ms with analog output, ≤ 200 ms with digital output	

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

OPERATING CONDITIONS

Medium temperature (depends on seal)	-40...+125 °C		
Ambient temperature	-40...+85 °C		
Storage temperature	-40...+85 °C		
Approval	0Ex ia IIC T6...T4 Ga X		
Temperature class	T4	T5	T6
Ambient temperature	-40...+80 °C	-40...+60 °C	-40...+50 °C
Vibration resistance	10 g RMS, 20–2000 Hz		
Shock resistance	100 g / 11 ms		
Service life	> 100 x 10 ⁶ cycles		

MECHANICAL SPECIFICATIONS

Pressure port material	stainless steel 316 (1.4404)			
Housing material	stainless steel 316 (1.4404)			
Seal	EPDM (-40...+125 °C); NBR (-25...+100 °C); FKM (-20...+125 °C); welded (no seal)			
Diaphragm	stainless steel 316L (1.4435)			
Wetted parts	Diaphragm, pressure port, seal			
Pressure port	G1/2" DIN 3852 / EN 837	G1/4" DIN 3852 / EN 837	1/2" NPT	1/4" NPT
	M20x1.5 DIN 3852 / EN 837	M16x1.5 DIN 3852 / EN 837	M12x1.5 DIN 3852 / EN 837	
	M12x1.25 DIN 3852 / EN 837	M12x1 DIN 3852 / EN 837	M10x1 DIN 3852	
	G1/2" DIN 3852 Open port	G1/2" DIN 3852 Flush diaphragm	G3/4" DIN 3852 Flush diaphragm	
	M20x1.5 DIN 3852 Open port	M20x1.5 DIN 3852 Flush diaphragm		
Electrical connection	Ingress protection	Cross section	Cable diameter	
DIN 43650A (4 pin)	IP65	1.5 mm ²	6...8 mm	
Binder 723 (5 pin)	IP67	0.75 mm ²	6...8 mm	
M12x1 (5 pin)	IP67	0.75 mm ²	6...8 mm	
Buccaneer (4 pin)	IP68	1.5 mm ²	6...8 mm	
Cable gland, M12x1.5	IP67	0.14 mm ²	5 mm	
Cable gland, stainless steel	IP68	0.14 mm ²	7.5 mm	
Field housing, cable gland M20x1.5	IP67	1.5 mm ²	7...10 mm	

DIGITAL DISPLAY (only for field housing version)

Display type	OLED 128x64 pixels (30x16 mm)
Displayed units	bar, mbar, MPa, kPa, Pa, psi, mmHg, mWc, ftH ₂ O, %, mA, user
Displayed values range	-1999...9999
Display accuracy	0.1 % of span ± 1 digit
Settling time	< 1 s (with damping disabled)
Damping	0.3...30 s (programmable)

ELECTRICAL SPECIFICATIONS

Output signal	Power supply, U _s	Load resistance, R	Power consumption
4...20 mA / 2-wire	12...36 V	≤ [(U _s – 12 V) / 0.02 A] Ohm*	≤ 26 mA
4...20 mA / HART®	18...42 V (with display)	≤ [(U _s – 18 V) / 0.02 A] Ohm* (with display)	
4...20 mA / 3-wire	12...36 V	≤ 500 Ohm	
0...20 mA / 3-wire		≥ 10 kOhm	
0...10 V / 3-wire			
0...5 V / 3-wire			< 7 mA
0.5...4.5 V / 3-wire	5 V	≥ 5 kOhm	≤ 2 mA
0.5...4.5 V / 3-wire	6...15 V		≤ 7 mA
RS-485 / Modbus RTU	12...36 V	-	≤ 7 mA

* For 4...20 mA / HART® output signal, minimum load resistance for digital communication: 250 Ohm.

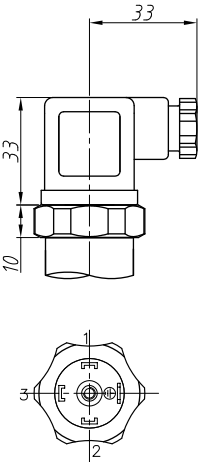
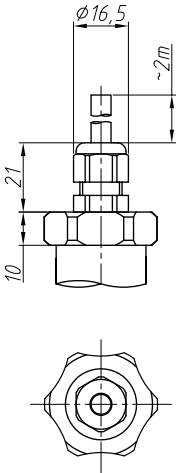
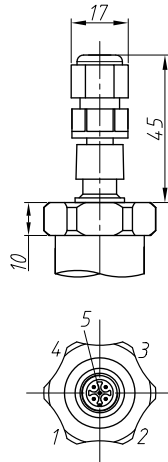
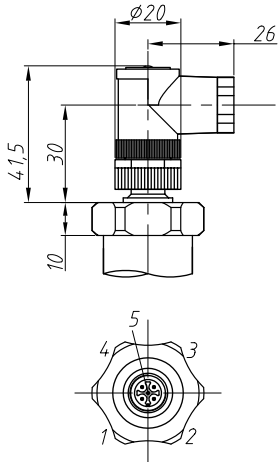
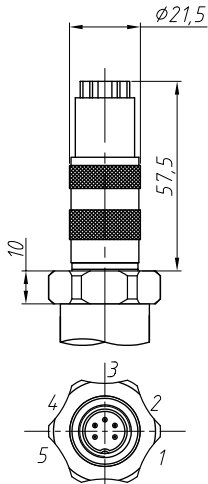
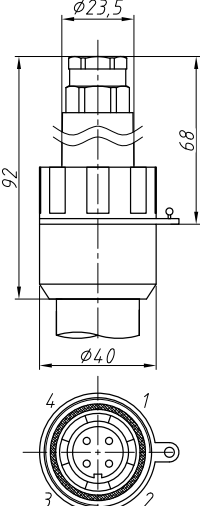
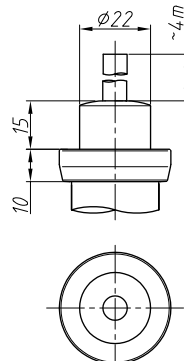
Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

Parameter	2-wire	3-wire, 4-wire
Maximum voltage, U _i	28 V	6 V
Maximum current, I _i	93 mA	60 mA
Maximum power, P _i	660 mW	100 mW
Maximum internal inductance, L _i	10 µH	10 µH
Maximum internal capacitance, C _i	15 nF	500 nF

ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

Circuits		DIN 43650	M12x1	Binder 723	Buccaneer	Cable gland	Field housing with M20x1.5 cable gland
2-wire	power +	1	1	3	1	white	2
	power -	2	2	4	2	brown	3
	shield	GND	4	5	4	yellow-green	1
3-wire	power +	1	1	3	1	white	2
	power -	2	2	4	2	brown	3
	signal +	3	3	1	3	green	4
	shield	GND	4	5	4	yellow-green	1
RS-485 4-wire	power +	-	3	3	-	white	-
	power -	-	1	1	-	brown	-
	A	-	4	4	-	yellow	-
	B	-	5	5	-	green	-
	shield	-	2	2	-	yellow-green	-

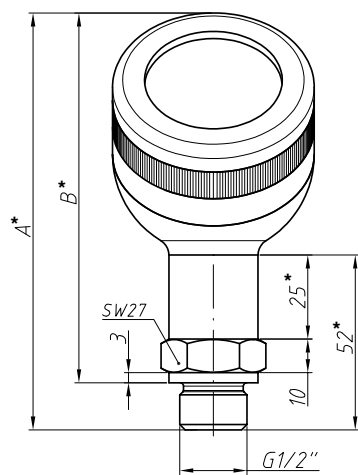
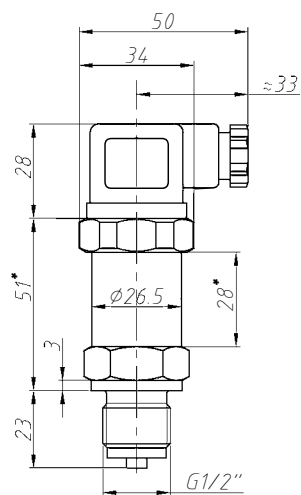
ELECTRICAL CONNECTIONS, DIMENSIONS (mm)

DIN 43650A (IP65)	Cable gland M12x1.5 (IP67)	M12x1 straight connector (IP67)	M12x1 angular connector (IP67)
			
Binder 723 (IP67)	Buccaneer (IP68)	Stainless steel cable gland (IP68)	
			

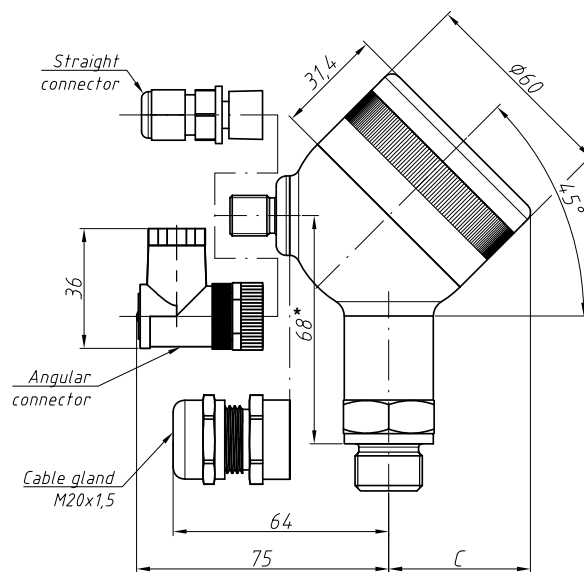
DIMENSIONS (mm)

Standard

Field housing



	A	B	C
with display	124	110	42
without display	121	107	39



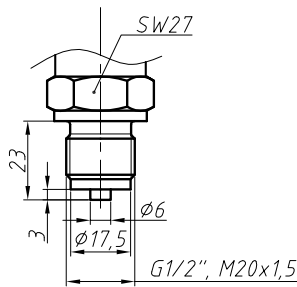
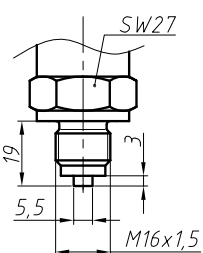
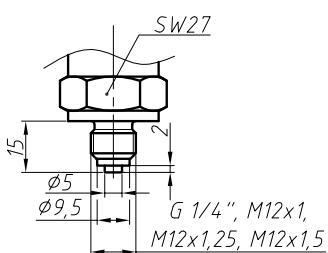
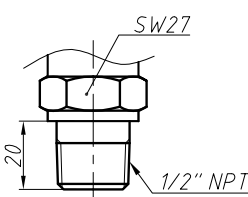
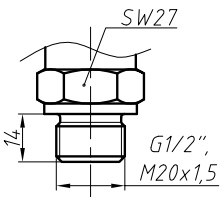
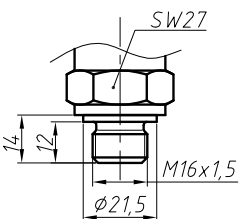
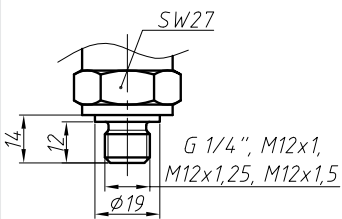
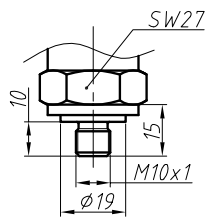
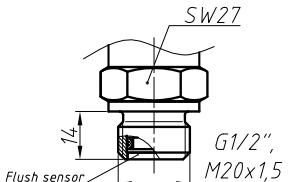
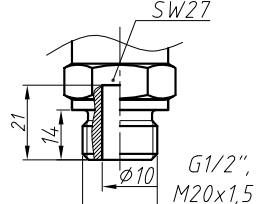
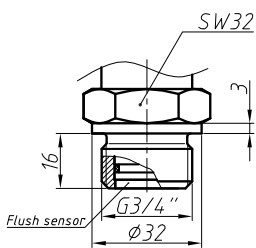
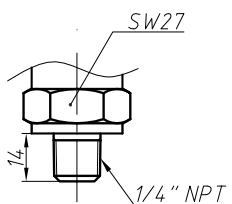
* Housing of pressure transmitter with welded sensor is 8 mm longer.

Housing of Ex ia version is 25 mm longer.

Housing of pressure transmitter with RS485 / ModbusRTU output signal is 34 mm longer.

Housing of pressure transmitter with HART® output signal is 42 mm longer.

PRESSURE PORTS, DIMENSIONS (mm)

M20x1.5; G1/2" EN 837	M16x1.5 EN 837	G1/4"; M12x1; M12x1.25 M12x1.5 EN 837	1/2" NPT
 SW27 23 3 Ø6 Ø17,5 G1/2", M20x1,5	 SW27 19 3 5,5 M16x1,5	 SW27 15 2 Ø5 Ø9,5 G 1/4", M12x1, M12x1,25, M12x1,5	 SW27 20 1/2" NPT
M20x1.5; G1/2" DIN 3852	M16x1.5 DIN 3852	G1/4"; M12x1; M12x1.25 M12x1.5 DIN 3852	M10x1 DIN 3852
 SW27 14 G1/2", M20x1,5	 SW27 14 12 M16x1,5 Ø21,5	 SW27 14 12 G 1/4", M12x1, M12x1,25, M12x1,5 Ø19	 SW27 10 15 M10x1 Ø19
M20x1.5; G1/2" DIN 3852 Flush diaphragm	M20x1.5; G1/2" DIN 3852 Open port	G3/4" DIN 3852 Flush diaphragm	1/4" NPT
 SW27 14 G1/2", M20x1,5 Flush sensor	 SW27 21 14 Ø10 G1/2", M20x1,5	 SW32 3 16 G3/4" Ø32 Flush sensor	 SW27 14 1/4" NPT

ORDERING CODE

APZ 3420		-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
MEASUREMENT TYPE										
Gauge		G								
Absolute		A								
Vacuum, LRL = -1 bar		V								
UNIT OF MEASUREMENT										
bar		B								
kg/cm ²		S								
mH ₂ O		W								
kPa		K								
MPa		M								
Other (specify when ordering)		X								
UPPER RANGE LIMIT (URL)										
bar, kg/cm ²		mH ₂ O		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			
Dual range		XXXX-XXXX*								
Triple range		XXXX-XXXX-XXXX*								
ACCURACY										
		0.25% (P > 0.4 bar) (standard)				C				
		0.50% (P ≤ 0.4 bar) (standard)				D				
		0.20% (P > 0.4 bar)				B				
		Other (specify when ordering)				X				
ELECTRICAL CONNECTION										
		DIN 43650A				10				
		Binder 723				20				
		M12x1, straight connector				30				
		M12x1, angular connector				31				
		Cable gland M12x1.5 + cable 2 m				40				
		Stainless steel cable gland + cable 4 m				41				
		Buccaneer				50				
		Field housing without display, cable gland M20x1.5				60				
		Field housing with display, cable gland M20x1.5				67				
		Field housing with display, straight connector M12x1				64				
		Field housing with display, angular connector M12x1				65				
		Other (specify when ordering)				XX				

ORDERING CODE (CONTINUED)

	APZ 3420	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
OUTPUT SIGNAL										
						4...20 mA / 2-wire (standard)	A			
						4...20 mA / 2-wire, 0Ex ia IIC T6...T4 Ga X	Q			
						4...20 mA / 3-wire	B			
						0...20 mA / 3-wire	C			
						0...5 mA / 3-wire	S			
						0...10 V / 3-wire	D			
						0...5 V / 3-wire	E			
						0.5...4.5 V, $U_S = 5$ V, 0Ex ia IIC T6...T4 Ga X	R			
						0.5...4.5 V, $U_S = 6...15$ V	K			
						RS-485 / Modbus RTU	M			
						4...20 mA / HART®	H			
						Other (specify when ordering)	X			
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			
						M10x1 DIN 3852	100			
						M12x1 DIN 3852	120			
						M12x1 EN 837	121			
						M12x1.5 DIN 3852	122			
						M12x1.5 EN 837	123			
						M16x1.5 DIN 3852	160			
						M16x1.5 EN 837	161			
						G3/4" DIN 3852 Flush diaphragm	735			
						G1/2" DIN 3852 Flush diaphragm	725			
						G1/2" DIN 3852 Open port	726			
						M20x1.5 DIN 3852 Flush diaphragm	205			
						M20x1.5 DIN 3852 Open port	206			
						1/4" NPT	840			
						1/2" NPT	820			
						M12x1.25 DIN 3852	127			
						M12x1.25 EN 837	128			
						Other (specify when ordering)	XXX			

