

**DESCRIPTION**

APZ 3420 m is a flush diaphragm version of our standard pressure transmitter. Due to its optimized design, it has no dead zones that can get blocked by the viscous and pasty media. Optionally, APZ 3420 m can be equipped with a heat sink element for high temperature media applications.

**SPECIFICATIONS**

Pressure ranges: 100 mbar to 600 bar

Basic accuracy: up to  $\pm 0.25\%$

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

Optional: heat sink for media up to 300 °C

Optional: remote diaphragm seal connection with optional capillary tube

**APPLICATIONS**

General industrial applications

Process automation

Viscous liquid level monitoring

Industrial machinery

Hydraulics

## 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	-			0...10	0...10	30	40
0...0.1	-	1.0	1.5	0...16	0...16	60	80
0...0.16	-	1.0	1.5	0...25	0...25	60	80
0...0.25	0...0.25	1.0	1.5	0...40	0...40	100	150
0...0.40	0...0.40	1.0	1.5	0...60	0...60	100	150
0...0.60	0...0.60	3.0	4.0	0...100	0...100	150	230
0...1.0	0...1.0	3.0	4.0	0...160	0...160	300	450
0...1.6	0...1.6	6.0	8.0	0...250	0...250	530	780
0...2.5	0...2.5	6.0	8.0	0...400	0...400	1050	1580
0...4.0	0...4.0	15	20	0...600	0...600	1050	1580
0...6.0	0...6.0	15	20				

### 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)	≤ ±0.15	≤ ±0.25
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%)	≤ 5 ms with analog output, ≤ 200 ms with digital output	

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

### OPERATING CONDITIONS

Medium temperature	-40...+125 °C; optional: -20...+125/150 °C; -40...+150 °C; 0...+300 °C (depends on diaphragm seal design and fill fluid)		
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 <sup>6</sup> cycles		

### MECHANICAL SPECIFICATIONS

Pressure port material	stainless steel 316L (1.4404)		
Housing material	stainless steel 316L (1.4404)		
Seal	EPDM (-40...+125 °C); NBR (-25...+100 °C); FKM (-25...+125 °C); welded (no seal)		
Diaphragm	stainless steel 316L (1.4435)		
Wetted parts	Diaphragm, pressure port, seal		
Pressure port	M20x1.5 DIN 3852 Flush diaphragm	G 1" Flush diaphragm, peripheral seal	
	G 1/2" DIN 3852 Flush diaphragm	Flange DN 25 / PN 40 EN 1092-1/B Flush diaphragm	
	G 3/4" DIN 3852 Flush diaphragm	Flange DN 40 / PN 40 EN 1092-1/B Flush diaphragm	
	G 1" DIN 3852 Flush diaphragm	Flange DN 50 / PN 40 EN 1092-1/B Flush diaphragm	
	G 1 1/2" DIN 3852 Flush diaphragm	Flange DN 80 / PN 16 EN 1092-1/B Flush diaphragm	
	G 1/2" Flush diaphragm, peripheral seal	Flange DN 100 / PN 40 EN 1092-1/B Flush diaphragm	
<b>Electrical connection</b>	<b>Ingress protection</b>	<b>Cross section</b>	<b>Cable diameter</b>
DIN 43650A (4 pin)	IP65	1.5 mm <sup>2</sup>	6...8 mm
Binder 723 (5 pin)	IP67	0.75 mm <sup>2</sup>	6...8 mm
M12x1 (5 pin)	IP67	0.75 mm <sup>2</sup>	6...8 mm
Buccaneer (4 pin)	IP68	1.5 mm <sup>2</sup>	6...8 mm
Cable gland, M12x1.5	IP67	0.14 mm <sup>2</sup>	5 mm
Cable gland, stainless steel	IP68	0.14 mm <sup>2</sup>	7.5 mm
Field housing, cable gland M20x1.5	IP67	1.5 mm <sup>2</sup>	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, ftH2O, %, mA, user
Displayed values range	-1999...9999
Display accuracy	0.1 % of span $\pm$ 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	$\leq [(U_s - 12 \text{ V}) / 0.02 \text{ A}] \text{ Ohm}^*$	$\leq 26 \text{ mA}$
4...20 mA / HART®	18...42 V (with display)	$\leq [(U_s - 18 \text{ V}) / 0.02 \text{ A}] \text{ Ohm}^*$ (with display)	
4...20 mA / 3-wire	12...36 V	$\leq 500 \text{ Ohm}$	$< 7 \text{ mA}$
0...20 mA / 3-wire		$\geq 10 \text{ kOhm}$	
0...10 V / 3-wire		$\geq 5 \text{ kOhm}$	
0...5 V / 3-wire	5 V	$\geq 5 \text{ kOhm}$	$\leq 2 \text{ mA}$
0.5...4.5 V / 3-wire	6...15 V	-	$\leq 7 \text{ mA}$
RS-485 / Modbus RTU	12...36 V	-	$\leq 7 \text{ mA}$

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

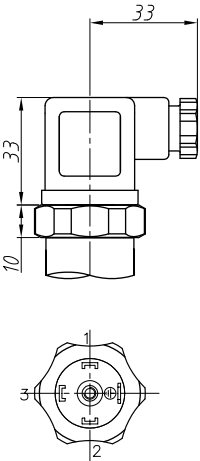
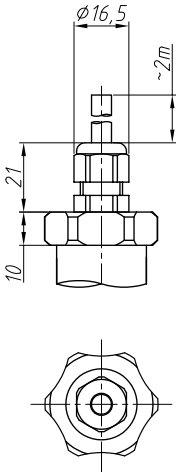
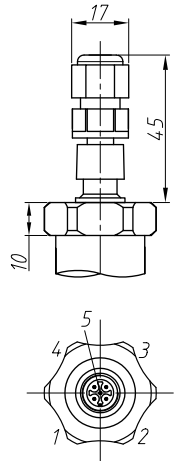
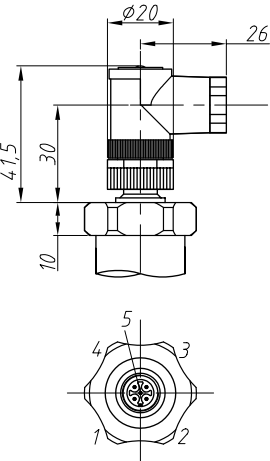
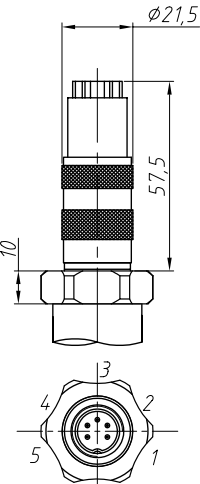
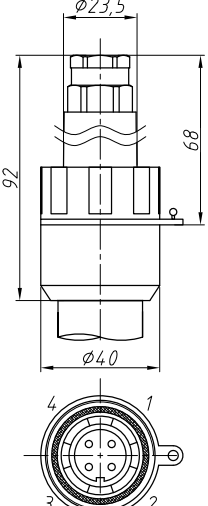
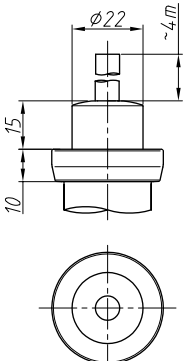
Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

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 $\mu\text{H}$	10 $\mu\text{H}$
Maximum internal capacitance, $C_i$	15 nF	500 nF

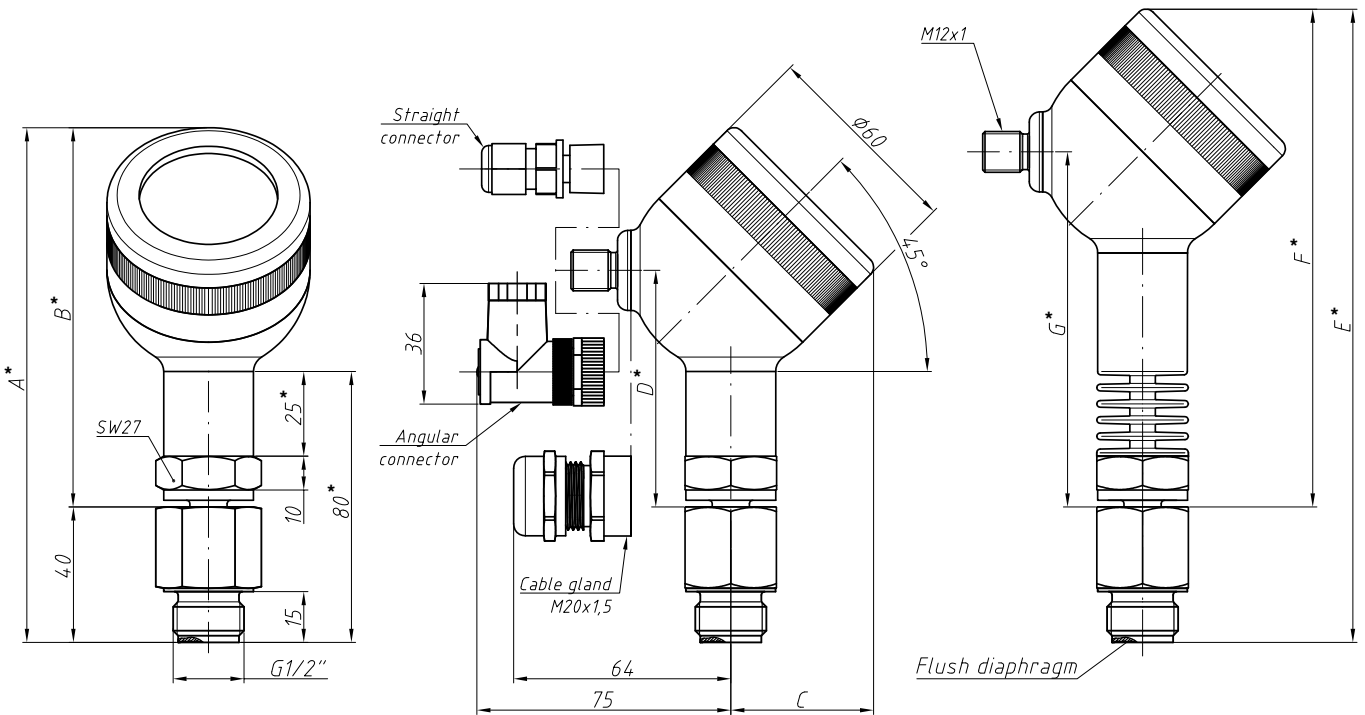
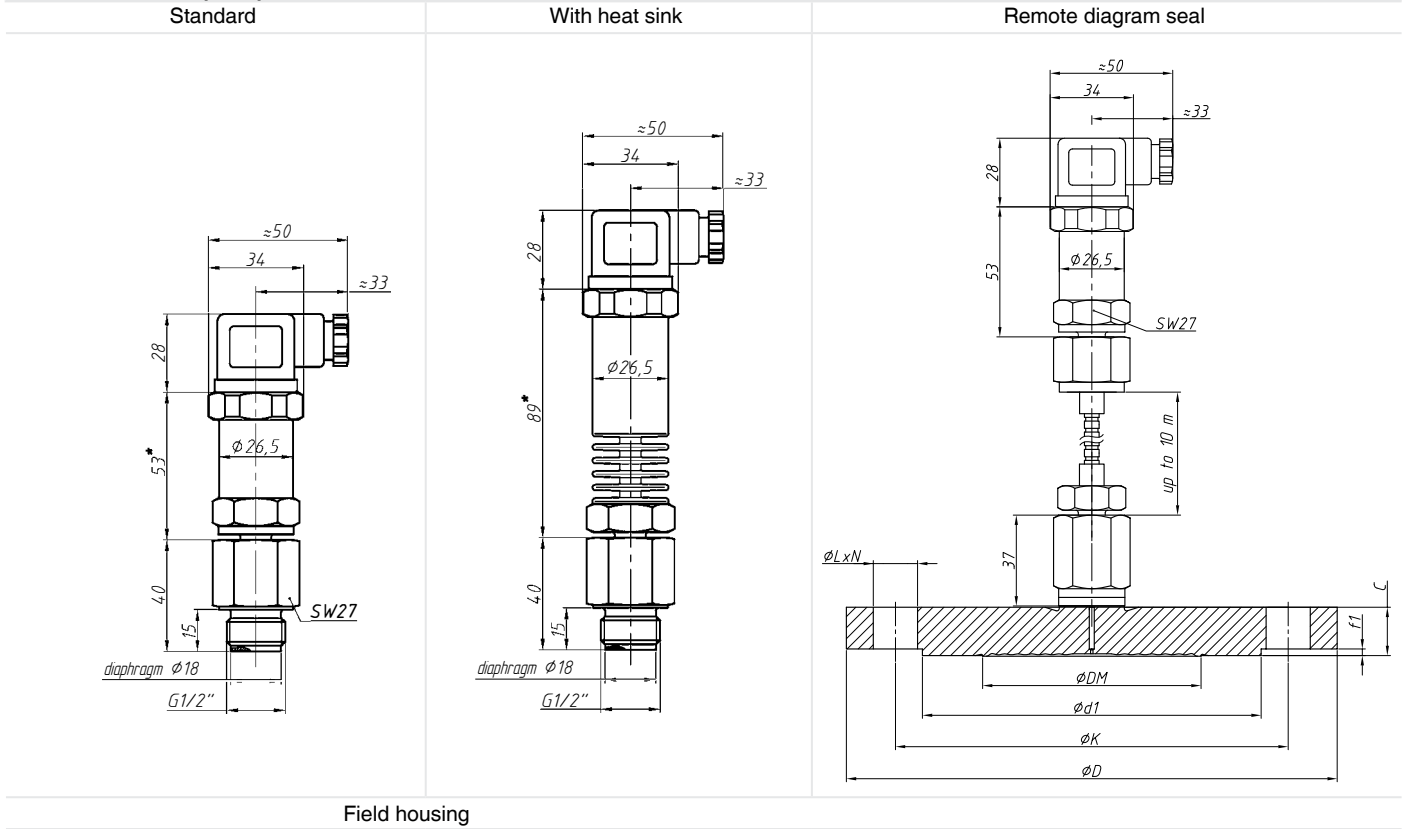
### ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

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)



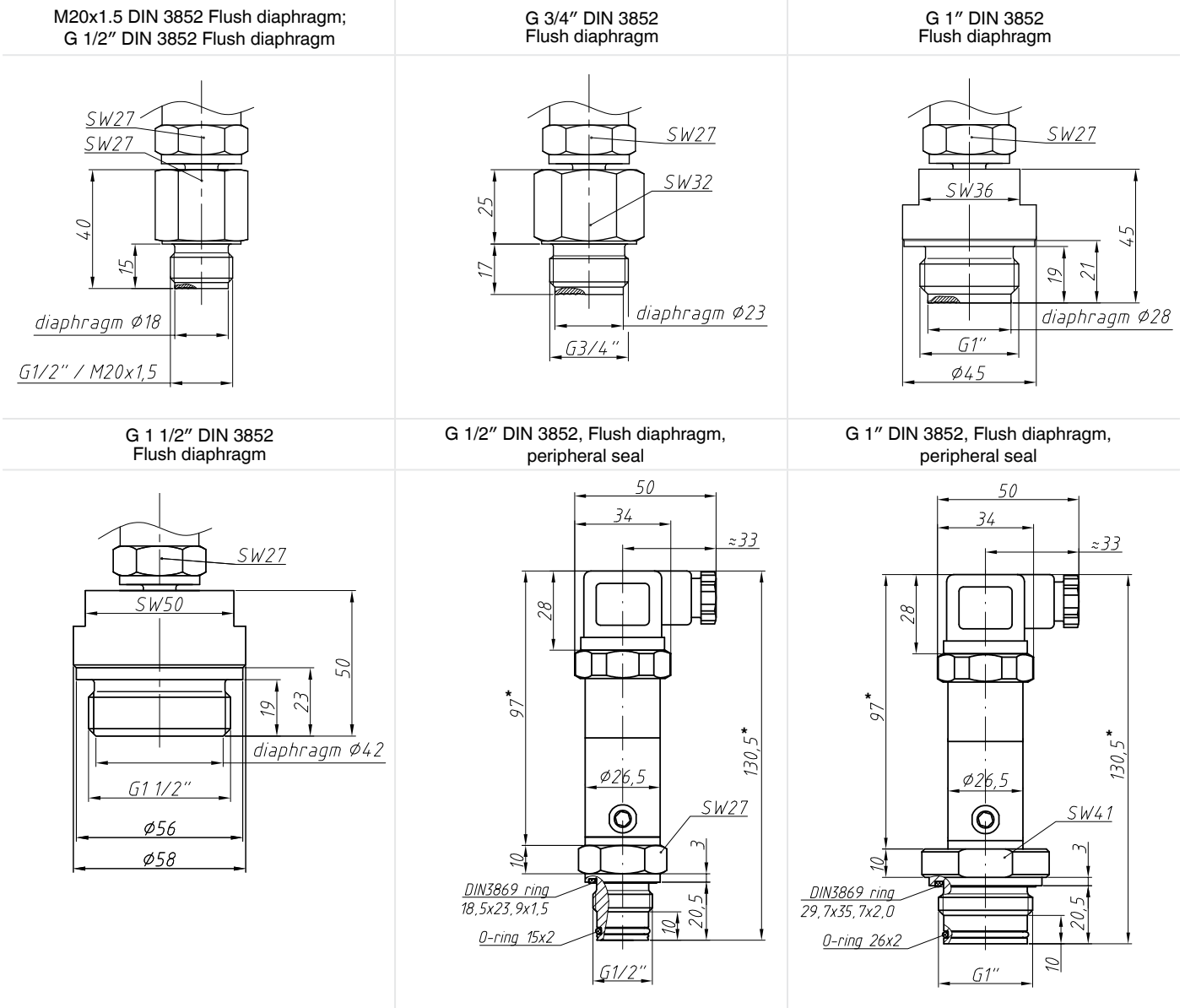
	A	B	C	D	E	F	G
with display	152	112	42	70	187	14.7	105
without display	149	109	39	70	184	14.4	105

\* Housing of Ex ia version is 25 mm longer.

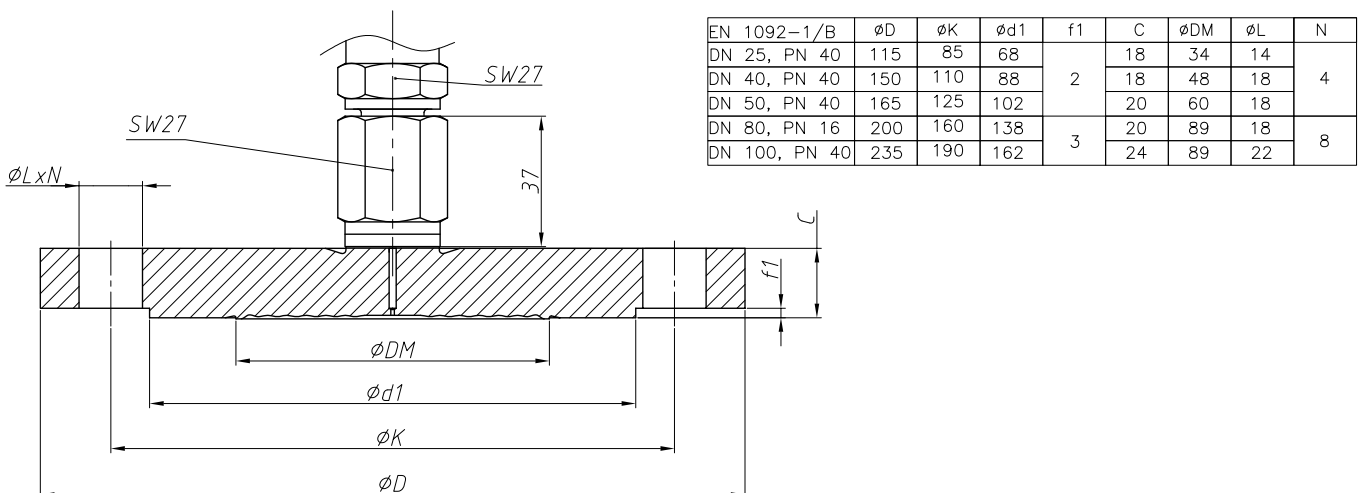
Housing of pressure transmitter with RS485 / ModbusRTU output signal is 34 mm longer.

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

## PRESSURE PORTS, DIMENSIONS (mm)



Flange DN25/PN40 EN 1092-1/B; Flange DN40/PN40 EN 1092-1/B;  
Flange DN50/PN40 EN 1092-1/B; Flange DN80/PN16 EN 1092-1/B;  
Flange DN100/PN40 EN 1092-1/B



## ORDERING CODE

APZ 3420 m		-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-X	-XX
<b>MEASUREMENT TYPE</b>											
	Gauge	G									
	Absolute (0.25 ≤ P ≤ 600 bar)	A									
	Vacuum, LRL = -1 bar	V									
<b>UNIT OF MEASUREMENT</b>											
	bar	B									
	kg/cm <sup>2</sup>	S									
	mH <sub>2</sub> O	W									
	kPa	H									
	Other (specify when ordering)	X									
<b>UPPER RANGE LIMIT (URL)</b>											
	bar, kg/cm <sup>2</sup>		mH <sub>2</sub> O		kPa						
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						
1.6	1600	16	1601	160	1602						
2.5	2500	25	2501	250	2502						
4.0	4000	40	4001	400	4002						
6.0	6000	60	6001	600	6002						
10	1001	100	1002	1000	1003						
16	1601	160	1602	Other	XXXX						
25	2501	250	2502								
40	4001	Other	XXXX								
60	6001										
100	1002										
160	1602										
250	2502										
400	4002										
600	6002										
Other	XXXX										
<b>ACCURACY</b>											
	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									
<b>ELECTRICAL CONNECTION</b>											
	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 m	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-X	-XX
<b>OUTPUT SIGNAL</b>											
							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 / 3-wire, U <sub>S</sub> = 5 V, 0Ex ia IIC T6...T4 Ga X	R			
							0.5...4.5 V / 3-wire, U <sub>S</sub> = 6...15 V	K			
							RS-485 / Modbus RTU	M			
							4...20 mA / HART®	H			
							Other (specify when ordering)	X			
<b>PRESSURE PORT</b>											
							M20x1.5 DIN 3852 Flush diaphragm (2.5 ≤ P ≤ 600 bar)	208			
							G 1/2" DIN 3852 Flush diaphragm (2.5 ≤ P ≤ 600 bar)	728			
							G 3/4" DIN 3852 Flush diaphragm (0.6 ≤ P ≤ 600 bar)	738			
							G 1" DIN 3852 Flush diaphragm (0.1 ≤ P ≤ 600 bar)	718			
							G 1 1/2" DIN 3852 Flush diaphragm (0.1 ≤ P ≤ 600 bar)	768			
							G 1/2" DIN 3852, Flush diaphragm, peripheral seal (2.5 ≤ P ≤ 600 bar)	727			
							G 1" DIN 3852, Flush diaphragm, peripheral seal (0.1 ≤ P ≤ 10 bar)	717			
							Flange DN25/PN40 EN 1092-1/B Flush diaphragm (0.1 ≤ P ≤ 40 bar)	F25			
							Flange DN40/PN40 EN 1092-1/B Flush diaphragm (0.1 ≤ P ≤ 40 bar)	F40			
							Flange DN50/PN40 EN 1092-1/B Flush diaphragm (0.1 ≤ P ≤ 40 bar)	F50			
							Flange DN80/PN16 EN 1092-1/B Flush diaphragm (0.1 ≤ P ≤ 16 bar)	F80			
							Flange DN100/PN40 EN 1092-1/B Flush diaphragm (0.1 ≤ P ≤ 40 bar)	F100			
							Flange connection with optional capillary tube	RSFXXX*			
							Threaded connection with optional capillary tube	RSTXXX*			
							Other (specify when ordering)	XXX			
<b>DIAPHRAGM SEAL FILL FLUID</b>											
							Silicone oil (-40...+150 °C)**	S			
							Food grade oil (-20...+150 °C)**	F			
							High temperature silicone oil (0...+300 °C)**	T			
							Other	X			

\* Submit port configuration using Table 1. A unique code will be assigned to this configuration. For example the RSF9 code was assigned to the following configuration: Flange DN 50 / PN 40, capillary tube 6 m, 316L diaphragm, I.

\*\* Maximum operating temperature of the transmitter is the minimal value of the two determined by the seal, fill fluid and the version (standard, with a heat sink). Minimal operating temperature of the transmitter is that of the liquid.

Table 1 Remote diaphragm seal parameters

Diaphragm seal	Size	Fill fluid	Capillary tube length	Diaphragm material	Seal
RSF – Flange	EN 1092-1/B: DN 25, DN 40, DN 50, DN 80, DN 100	Silicone oil, High temperature silicone oil, Food grade oil	Direct mounting, With capillary tube – length 0.5 to 10 m	316L stainless steel	No seal; NBR; PTFE; FKM
RST – Threaded	M20x1.5, G1/2", G3/4", G1", G1½"				



## ORDERING CODE (CONTINUED)

	APZ 3420 m	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-X	-XX
<b>SEALS</b>											
								FKM (-25...+125 °C) (standard)		F	
								NBR (-25...+100 °C)		N	
								EPDM (-40...+125 °C)		E	
								Other (specify when ordering)		X	
<b>VERSION</b>											
										Standard (up to +125 °C)*	00
										Zero trim for 4...mA / 2-wire output (requires ZCON 100 configurator)	01
										Heat sink (for high-temperature media up to +300 °C)*	30
										Temperature compensated in the range of -40...+60 °C	46
										Compound filled version	16
										Other (specify when ordering)	XX

\* Maximum operating temperature of the transmitter is the minimal value of the two determined by the seal, fill fluid and the version (standard, with a heat sink). Minimal operating temperature of the transmitter is that of the liquid.

Example: APZ 3420 m-G-B-4001-B-10-A-728-S-F-00

## ACCESSORIES

				
DZ 10 Pressure snubber	ZCON 100 Zero trim and range selection device	ANZ 200 Plug-in display for transmitters with 4-20 mA output	PZ 1024 Power supply unit	BZ 05 / BZ 10 Dry air junction box for submersible transmitters