

**DESCRIPTION**

APZ 3020 industrial differential pressure transmitter is based on a silicon piezoresistive pressure sensor. True differential wet-wet technology allows to obtain high precision measurements of the differential pressure even if the static pressure exceeds it by two orders of magnitude. Compact design of the APZ 3020 and its radial and axial pressure port connection options make it a great candidate for use in constrained spaces.

SPECIFICATIONS

Ranges: 100 mbar to 25 bar

Pressure type: Wet/Wet true differential

Accuracy: up to $\pm 0.25\%$

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

Sensor: true differential silicon piezoresistive

Pressure port: G 1/4" female; 7/16"-20 UNF axial; radial; other

Media temperature: -40...+125 °C

Ambient temperature: -40...+85 °C

APPLICATIONS

Liquids and gases

HVAC/R

Hydraulics

Pneumatics

TECHNICAL SPECIFICATIONS

MEASURING RANGES

Pressure range, bar	One-way overpressure +, bar	One-way overpressure -, bar	Burst pressure, bar	Pressure range, bar	One-way overpressure +, bar	One-way overpressure -, bar	Burst pressure, bar
Differential				Differential			
0...0.10	0.7	0.4	1.0	0...2.5	5.0	2.5	10
0...0.16	0.7	0.4	1.0	0...4.0	8.0	4	10
0...0.25	0.7	0.4	1.0	0...6.0	12	6	20
0...0.40	0.7	0.4	1.0	0...10	20	10	30
0...0.60	1.5	0.70	2.3	0...16	32	10	60
0...1.0	2.0	1.0	3.0	0...25	50	10	100
0...1.6	5.0	2.5	6.0				

PERFORMANCE

Permissible static pressure	40 bar
Accuracy, % of span*	≤ ±0.5 (standard) / 0.25 (optional)
Temperature effect (% of span / 10 °C)	≤ ±0.1
Compensated range	-20...+80 °C
Compensated range (optional)	-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

Version with seal	FKM	NBR	EPDM	VMQ
Medium temperature	-25...+125 °C	-25...+100 °C	-40...+125 °C	-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 316L (1.4404)		
Housing material	ABS plastic, stainless steel 316L (1.4404)		
Seal	EPDM (-40...+125 °C); NBR (-25...+100 °C); FKM (-25...+125 °C); VMQ (-40...+135 °C)		
Diaphragm	stainless steel 316L (1.4435)		
Wetted parts	Diaphragm, pressure port, seal		
Pressure port	7/16"-20 UNF; M12x1.5 EN 837; G1/2" EN 837; G1/4" EN 837 female		
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

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®			
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		$\geq 5 \text{ kOhm}$	$\leq 2 \text{ mA}$
0...5 V / 3-wire			$\leq 7 \text{ mA}$
0.5...4.5 V / 3-wire	5 V	-	$\leq 7 \text{ mA}$
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.

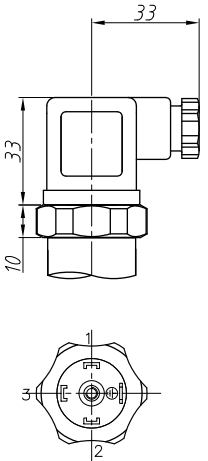
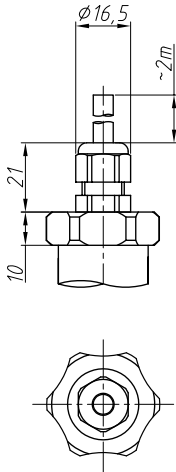
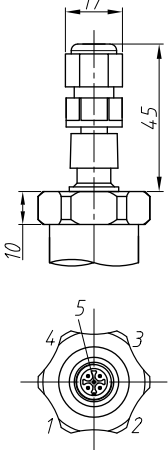
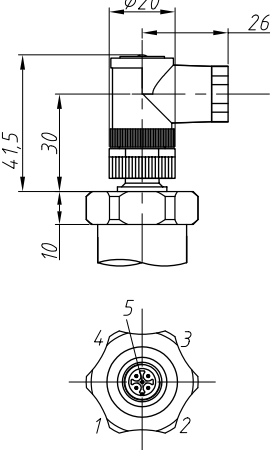
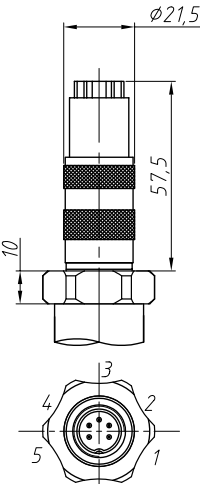
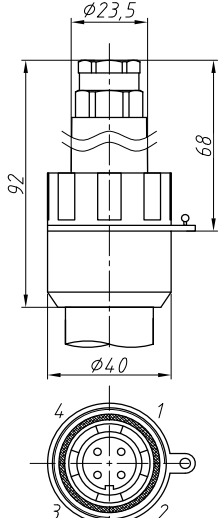
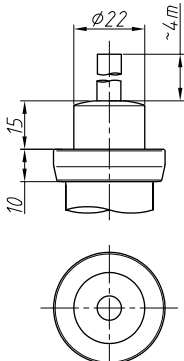
Safe values for intrinsically safe design 0Ex ia IIC T6...T4 Ga X:

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 µH	10 µH
Maximum internal capacitance, C _i	15 nF	500 nF

ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

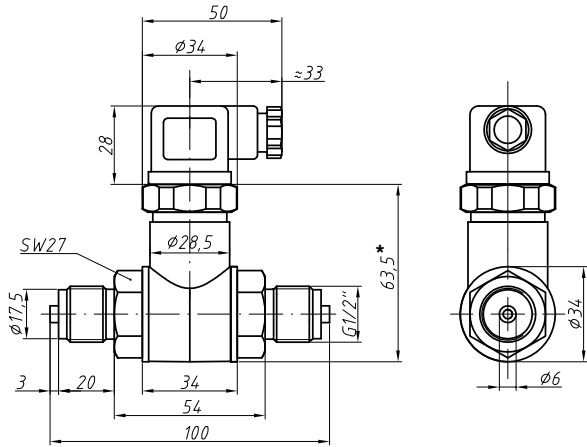
Circuits	DIN 43650	M12x1	Binder 723	Buccaneer	Cable gland	
2-wire	power +	1	1	3	1	white
	power -	2	2	4	2	brown
	shield	GND	4	5	4	yellow-green
3-wire	power +	1	1	3	1	white
	power -	2	2	4	2	brown
	signal +	3	3	1	3	green
	shield	GND	4	5	4	yellow-green
RS-485 4-wire	power +	-	3	3	-	white
	power -	-	1	1	-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

ELECTRICAL CONNECTIONS, DIMENSIONS (mm)

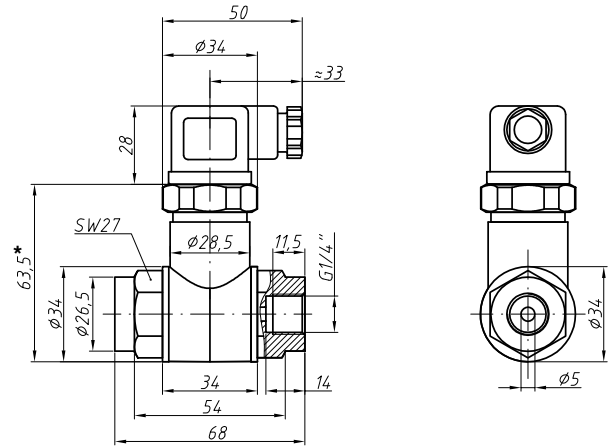
DIN 43650A (IP65)	Cable gland M12x1.5 (IP67)	M12x1 straight connector (IP67)	M12x1 angular connector (IP67)
			
Binder 723 (IP67)	Buccaneer (IP68)	Stainless steel cable gland (IP68)	
			

DIMENSIONS (mm)

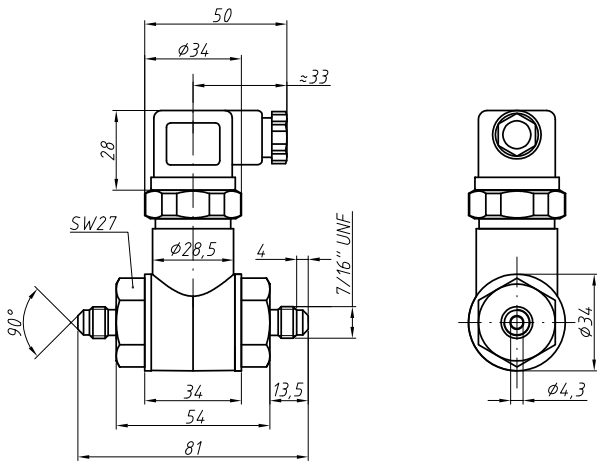
G1/2" EN 837 axial



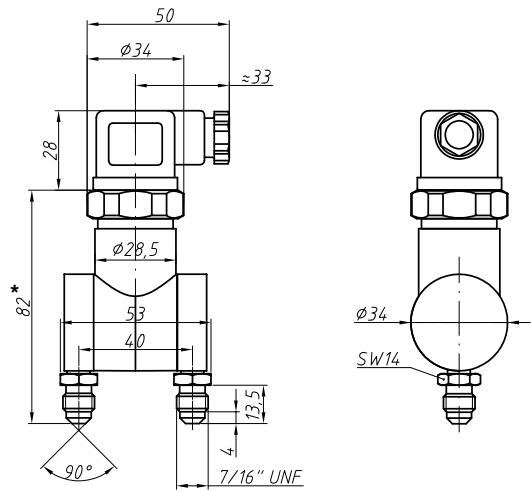
G1/4" EN 837 axial female



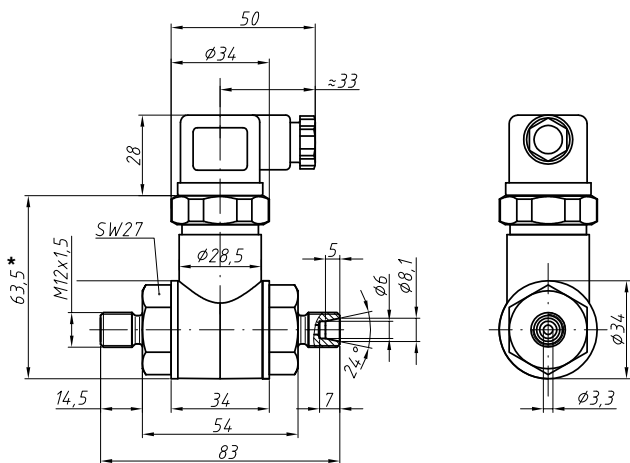
7/16" UNF axial



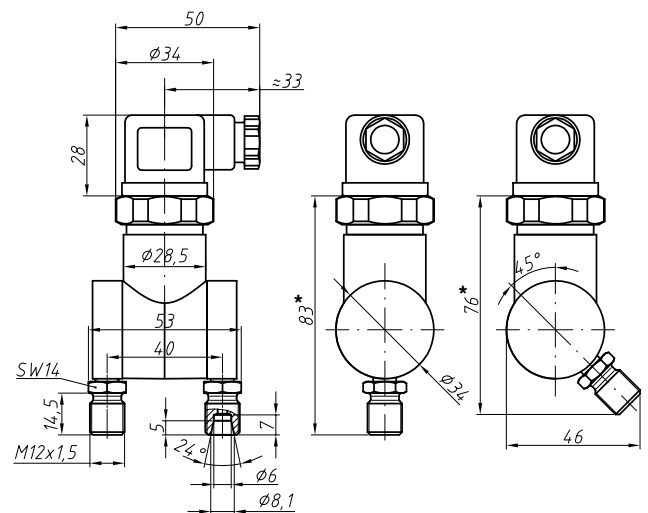
7/16" UNF radial



M12x1.5 EN 837 axial



M12x1.5 EN 837 radial



* Housing of Ex ia version is 25 mm longer.

ORDERING CODE

APZ 3020	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
MEASUREMENT TYPE									
Differential	D								
UNIT OF MEASUREMENT									
bar	B								
kPa	K								
kg/cm ²	S								
Other (specify when ordering)	X								
UPPER RANGE LIMIT (URL)									
bar, kg/cm ²		kPa							
0.10	0100	10	1001						
0.16	0160	16	1601						
0.25	0250	25	2501						
0.40	0400	40	4001						
0.60	0600	60	6001						
1.0	1000	100	1002						
1.6	1600	160	1602						
2.5	2500	250	2502						
4.0	4000	400	4002						
6.0	6000	600	6002						
10	1001	1000	1003						
16	1601	Other	XXXX						
25	2501								
Other	XXXX								
ACCURACY									
		0.50 % (standard)	D						
		0.25 %	C						
		Other (specify when ordering)	X						
ELECTRICAL CONNECTION									
		DIN 43650A	10						
		Binder 723	20						
		M12x1, straight connector	30						
		Cable gland M12x1.5 + cable 2 m	40						
		Stainless steel cable gland + cable 4 m	41						
		Buccaneer	50						
		M12x1, angular connector	31						
		Other (specify when ordering)	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...10 V / 3-wire	D						
		0...5 V / 3-wire	E						
		0.5...4.5 V / 3-wire, U _s = 5 V, 0Ex ia IIC T6...T4 Ga X	R						
		0.5...4.5 V / 3-wire, U _s = 6...15 V	K						
		RS-485 / Modbus RTU	M						
		4...20 mA / HART®	H						
		Other (specify when ordering)	X						
PRESSURE PORT									
		7/16"-20 UNF	716						
		G1/2" EN 837	721						
		G1/4" female	742						
		M12x1.5 EN 837	124						
		Other (specify when ordering)	XXX						

ORDERING CODE (CONTINUED)

	APZ 3020	-X	-X	-XXXX	-X	-XX	-X	-XXX	-X	-XX
SEALS										
								FKM (-25...+90 °C) (standard)	F	
								NBR (-25...+90 °C)	N	
								EPDM (-40...+90 °C)	E	
								VMQ (-40...+90 °C)	V	
								Other (specify when ordering)	X	
VERSION										
								Standard (pressure ports turned in opposite directions)		00
								Special (pressure ports turned downward)		10
								Special (pressure ports turned on 45° relative to the vertical axis)		45
								Zero trim (requires ZCON 100 configurator)		01
								Compound filled version		16
								Other (specify when ordering)		XX

Example: APZ 3020-D-B-6000-D-10-A-124-N-00

ACCESSORIES

				
<p>ZCON 100 Zero trim and range selection device</p>	<p>ANZ 200 Plug-in display for transmitters with 4-20 mA output</p>	<p>PZ 1024 Power supply unit</p>		