

## APZ 3420 x

## COMPACT EXPLOSION PROOF / FLAME PROOF PRESSURE TRANSMITTER

### DESCRIPTION

APZ 3420 x is a flame proof version of our standard industrial pressure transmitter. Reliable piezoresistive sensor technology combined with fully welded stainless steel case offer a versatile yet cost-effective transmitter in Ex d compact form factor.



### SPECIFICATIONS

Pressure ranges: 40 mbar to 600 bar

Pressure types: gauge, absolute

Basic accuracy:  $\pm 0.25\%$

Outputs: 4...20 mA; 0...20 mA; 0...10 V; 0...5 V; HART®; RS-485 / Modbus RTU

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 graphics display

### APPLICATIONS

Oil field equipment

Upstream oil and gas production

Gas compressors

Oil platforms

Appearance, mounting kit contents and/or specifications are subject to change without prior notice. We are constantly working on further improvement of our products.  
Delivery is subject to standard terms of delivery.  
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## 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                | 15                  |                     |          |                   |                     |

| PERFORMANCE                            | P > 0.4 bar                                                | 0.4 ≥ P > 0.16 bar | P ≤ 0.16 bar    |
|----------------------------------------|------------------------------------------------------------|--------------------|-----------------|
| Accuracy, % of span*                   | ≤ ±0.25 (standard) / 0.20 (optional)                       | ≤ ±0.5 (standard)  | ≤ ±1 (standard) |
| Temperature effect (% of span / 10 °C) | ≤ ±0.1                                                     | ≤ ±0.2             | ≤ ±0.25         |
| Compensated range                      | -20...+80 °C                                               | 0...+80 °C         | 0...+80 °C      |
| Compensated range (optional)           | -40...+60 °C                                               | -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                  | -50...+85 °C                   |             |             |
| Approvals                            | 1Ex d IIC T6...T4 Gb X         |             |             |
| Temperature class                    | T4                             | T5          | T6          |
| Ambient temperature                  | -40...85 °C                    | -40...70 °C | -40...60 °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 304 (1.4301) standard; 316L (1.4404) - optional                               |                     |                |
| Housing material                   | stainless steel 316L (1.4404)                                                                 |                     |                |
| Seal                               | welded (-40...+125 °C)                                                                        |                     |                |
| Diaphragm                          | stainless steel 316L (1.4435)                                                                 |                     |                |
| Wetted parts                       | Diaphragm, pressure port, seal                                                                |                     |                |
| Pressure port                      | M20x1.5 EN 837; G1/2" EN 837; G1/4" EN 837; 1/4" NPT; 1/2" NPT; M12x1.5 EN 837; M12x1 EN 837; |                     |                |
| Electrical connection              | Ingress protection                                                                            | Cross section       | Cable diameter |
| Field housing, cable gland M20x1.5 | IP67                                                                                          | 1.5 mm <sup>2</sup> | 6...12 mm      |

## DIGITAL DISPLAY

|                        |                                                                                        |
|------------------------|----------------------------------------------------------------------------------------|
| Display type           | OLED 128x64 pixels (30x16 mm)                                                          |
| Displayed units        | bar, mbar, MPa, kPa, Pa, psi, mmHg, mH <sub>2</sub> O, ftH <sub>2</sub> 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

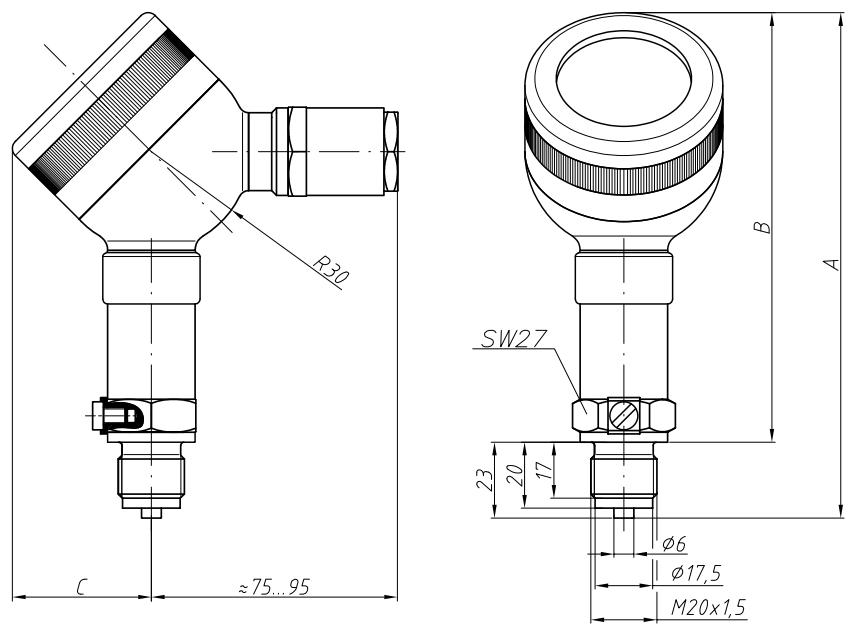
| Output signal        | Power supply, U <sub>s</sub> | Load resistance, R                                                          | Power consumption    |
|----------------------|------------------------------|-----------------------------------------------------------------------------|----------------------|
| 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                    | $\leq 500 \text{ Ohm}$                                                      |                      |
| 0...20 mA / 3-wire   |                              | $\geq 10 \text{ kOhm}$                                                      | < 7 mA               |
| 0...10 V / 3-wire    |                              | $\geq 5 \text{ kOhm}$                                                       |                      |
| 0...5 V / 3-wire     |                              |                                                                             |                      |
| 0.5...4.5 V / 3-wire | 5 V                          | $\leq 5 \text{ kOhm}$                                                       | $\leq 2 \text{ mA}$  |
| 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 output signal 4...20 mA / HART® minimum load resistance for digital communication: 250 Ohm.  
HART® is a registered trademark of HART® Communication Foundation.

## ELECTRICAL CONNECTIONS / PIN ASSIGNMENT

| Circuits         |          | Field housing without display | Field housing with display |
|------------------|----------|-------------------------------|----------------------------|
| 2-wire           | power +  | 2                             | 2                          |
|                  | power -  | 3                             | 3                          |
|                  | shield   | 1                             | 1                          |
| 3-wire           | power +  | 2                             | -                          |
|                  | power -  | 3                             | -                          |
|                  | signal + | 4                             | -                          |
|                  | shield   | 1                             | -                          |
| RS-485<br>4-wire | power +  | 2                             | -                          |
|                  | power -  | 3                             | -                          |
|                  | A        | 1                             | -                          |
|                  | B        | 4                             | -                          |
|                  | shield   | housing                       | -                          |

DIMENSIONS (mm)



|                 | A   | B   | C  |
|-----------------|-----|-----|----|
| with display    | 153 | 130 | 42 |
| without display | 150 | 127 | 39 |

Housing of RS-485 / Modbus RTU with is 25 mm longer  
Housing of HART® version is 30 mm longer

PRESSURE PORTS, DIMENSIONS (mm)

| M20x1.5; G1/2" EN 837                                                                                                                                                                                                                                                              | G1/4"; M12x1; M12x1.25; M12x1.5 EN 837                                                                                                                                                                                                                                                             | 1/2" NPT                                                                                                                                                                        | 1/4" NPT                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Technical drawing of the M20x1.5; G1/2" EN 837 pressure port. It shows a hexagonal nut labeled SW27. The dimensions are 23 (height to the top of the nut), 3 (height of the nut), 17.5 (diameter of the nut), 6 (diameter of the central hole), and 1/2" NPT (thread type).</p> | <p>Technical drawing of the G1/4"; M12x1; M12x1.25; M12x1.5 EN 837 pressure port. It shows a hexagonal nut labeled SW27. The dimensions are 15 (height to the top of the nut), 2 (height of the nut), 5 (diameter of the nut), 9.5 (diameter of the central hole), and 1/4" NPT (thread type).</p> | <p>Technical drawing of the 1/2" NPT pressure port. It shows a hexagonal nut labeled SW27. The dimensions are 20 (height to the top of the nut) and 1/2" NPT (thread type).</p> | <p>Technical drawing of the 1/4" NPT pressure port. It shows a hexagonal nut labeled SW27. The dimensions are 14 (height to the top of the nut) and 1/4" NPT (thread type).</p> |

## ORDERING CODE

| APZ 3420                                            |      | -X                | -X   | -X    | -XXXX | -X    | -XX  | -X | -XXX | -X | -XX |
|-----------------------------------------------------|------|-------------------|------|-------|-------|-------|------|----|------|----|-----|
| EXPLOSION-PROOF ENCLOSURE<br>1Ex d IIC T6...T4 Gb X |      | x                 |      |       |       |       |      |    |      |    |     |
| MEASUREMENT TYPE                                    |      |                   |      |       |       |       |      |    |      |    |     |
| Gauge                                               |      |                   | G    |       |       |       |      |    |      |    |     |
| Absolute                                            |      |                   | A    |       |       |       |      |    |      |    |     |
| Vacuum, LRL = -1 bar                                |      |                   | V    |       |       |       |      |    |      |    |     |
| UNIT OF MEASUREMENT                                 |      |                   |      |       |       |       |      |    |      |    |     |
| bar                                                 |      |                   | B    |       |       |       |      |    |      |    |     |
| kg/cm <sup>2</sup>                                  |      |                   | S    |       |       |       |      |    |      |    |     |
| mH <sub>2</sub> O                                   |      |                   | W    |       |       |       |      |    |      |    |     |
| kPa                                                 |      |                   | K    |       |       |       |      |    |      |    |     |
| MPa                                                 |      |                   | M    |       |       |       |      |    |      |    |     |
| Other (specify when ordering)                       |      |                   | X    |       |       |       |      |    |      |    |     |
| UPPER RANGE LIMIT (URL)                             |      |                   |      |       |       |       |      |    |      |    |     |
| bar, kg/cm <sup>2</sup>                             |      | mH <sub>2</sub> 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 |    |      |    |     |
| ACCURACY                                            |      |                   |      |       |       |       |      |    |      |    |     |
| 0.20% (P > 0.4 bar)                                 |      |                   |      |       |       | B     |      |    |      |    |     |
| 0.25% (P > 0.4 bar) (standard)                      |      |                   |      |       |       | C     |      |    |      |    |     |
| 0.50% (0.4 ≥ P > 0.16 bar) (standard)               |      |                   |      |       |       | D     |      |    |      |    |     |
| 1.0% (P ≤ 0.16 bar)                                 |      |                   |      |       |       | E     |      |    |      |    |     |
| Other (specify when ordering)                       |      |                   |      |       |       | X     |      |    |      |    |     |
| ELECTRICAL CONNECTION                               |      |                   |      |       |       |       |      |    |      |    |     |
| Field housing without display, cable gland M20x1.5  |      |                   |      |       |       | 60    |      |    |      |    |     |
| Field housing with display, cable gland M20x1.5     |      |                   |      |       |       | 67    |      |    |      |    |     |
| Other (specify when ordering)                       |      |                   |      |       |       | XX    |      |    |      |    |     |

### ORDERING CODE (CONTINUED)

| APZ 3420                                             | -X | -X | -X | -XXXX | -X | -XX                           | -X  | -XXX     | -X | -XX |
|------------------------------------------------------|----|----|----|-------|----|-------------------------------|-----|----------|----|-----|
| OUTPUT SIGNAL                                        |    |    |    |       |    |                               |     |          |    |     |
|                                                      |    |    |    |       |    | 4...20 mA / 2-wire (standard) | A   |          |    |     |
|                                                      |    |    |    |       |    | 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   |          |    |     |
|                                                      |    |    |    |       |    | RS-485 / Modbus RTU           | M   |          |    |     |
|                                                      |    |    |    |       |    | 4...20 mA / HART®             | H   |          |    |     |
|                                                      |    |    |    |       |    | Other (specify when ordering) | X   |          |    |     |
| PRESSURE PORT                                        |    |    |    |       |    |                               |     |          |    |     |
|                                                      |    |    |    |       |    | M20x1.5 EN 837 (standard)     | 201 |          |    |     |
|                                                      |    |    |    |       |    | G1/2" EN 837 (standard)       | 721 |          |    |     |
|                                                      |    |    |    |       |    | G1/4" EN 837                  | 741 |          |    |     |
|                                                      |    |    |    |       |    | M12x1 EN 837                  | 121 |          |    |     |
|                                                      |    |    |    |       |    | M12x1.5 EN 837                | 123 |          |    |     |
|                                                      |    |    |    |       |    | 1/4" NPT                      | 840 |          |    |     |
|                                                      |    |    |    |       |    | 1/2" NPT                      | 820 |          |    |     |
|                                                      |    |    |    |       |    | Other (specify when ordering) | XXX |          |    |     |
| SEALS                                                |    |    |    |       |    |                               |     |          |    |     |
|                                                      |    |    |    |       |    | Welded (-40...+125 °C)        | W   |          |    |     |
|                                                      |    |    |    |       |    | Other (specify when ordering) | X   |          |    |     |
| VERSION                                              |    |    |    |       |    |                               |     |          |    |     |
|                                                      |    |    |    |       |    |                               |     | Standard | 00 |     |
| Temperature compensated in the range of -40...+60 °C |    |    |    |       |    |                               |     | 46       |    |     |
| Compound filled version                              |    |    |    |       |    |                               |     | 16       |    |     |
| Other (specify when ordering)                        |    |    |    |       |    |                               |     | XX       |    |     |

Example: APZ 3420 x-G-B-4001-B-10-A-100-F-00

## ACCESSORIES

|                                                                                                                       |                                                                                                                          |                                                                                                                                                                |  |  |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  <p>DZ 10<br/>Pressure snubber</p> |  <p>EZ 1024<br/>Power supply unit</p> |  <p>BZ 05 / BZ 10<br/>Dry air junction box for submersible transmitters</p> |  |  |
|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|