

| | |
|---|---|
| Measurement ranges others available upon request | 250/500 Pa 1/2.5/5/10 kPa freely scalable from 10...100 % within a measurement range |
| Margin of error ¹⁾ | ± 0.2 % FS for measurement ranges ≤ 50 kPa or ± 0.5 % FS |
| Temperature coefficient span | 0.03 % FS/K (10...50 °C) |
| Temperature coefficient zero point | ± 0 % (cyclical zero-point correction) |
| Overload capacity | 100 kPa for measurement ranges ≥ 2.5 kPa 200 x for measurement ranges < 2.5 kPa |
| Medium | natural gas |
| Max. system pressure | 100 kPa for all measurement ranges |
| Sensor response time | 25 ms |
| Time constants | 25 ms...60 s (adjustable) |
| Operating temperature | 10...50 °C |
| Storage temperature | -10...70 °C |
| Power consumption | approx. 6 VA |
| Weight | approx. 750 g |
| Cable glands | 2 x M 16 |
| Pressure ports | 2 x laboratory nozzle DIN 12898 |
| Protection class | IP 65 |
| Certificates | CE + UKCA, EN1127-1:2007 |

¹⁾ Uncertainty of the reference 0.3 Pa; precision of the reference 0.12 Pa
relevant for measuring ranges ≤ ±1.5 kPa or 3 kPa

| Output (linear/ root-extracted) ²⁾ | A |
|--|---|
| 0...10 V ($R_L \geq 2 \text{ k}\Omega$) | 1 |
| 0...20 mA ($R_L \leq 500 \Omega$) | 0 |
| 4...20 mA ($R_L \leq 500 \Omega$) | 4 |
| ± 5 V ($R_L \geq 2 \text{ k}\Omega$) | 5 |

²⁾ output signals can be configured freely

| Power supply | B |
|---------------|-------|
| 24 VDC ± 10 % | 24 DC |

| Measurement range | C |
|--|---|
| Measurement range e.g. 0...250 Pa, 0...100 mmHg (etc.) | |

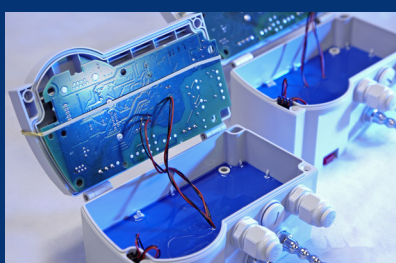
| Margin of error | D |
|--------------------------|---|
| ± 0.2 % FS ³⁾ | 2 |
| ± 0.5 % FS | S |

³⁾ for measurement ranges ≤ 50 kPa

| Order code | A | B | C | D | E | F | G |
|------------|---|---|---|---|---|---|---|
| P 29 | | | | | | | |

Can be pre-set on request:
Time constant, relay parameter, analogue output root-
extracted / linear, deactivation of the cyclic zeroing

As long as the customer observes the specified
flushing process, special
electronic encapsulation
safely separates any
ignition sources from
flammable gas.



| Display + keyboard | E |
|------------------------------------|----|
| none | 0 |
| multi-coloured LCD and keyboard | LC |



| Tubing connections | F |
|------------------------------------|---|
| standard for tubing NW 5...8 mm | 0 |
| cutting ring coupling 8 mm | S |

| Calibration certificate | G |
|------------------------------------|---|
| none | 0 |
| Factory calibration | W |
| Calibration according to DKD-R 6-1 | D |

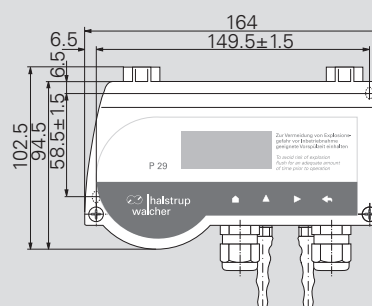


Picture: Version with display

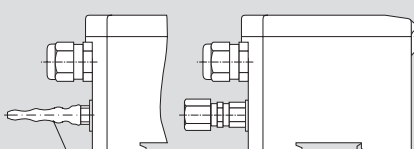
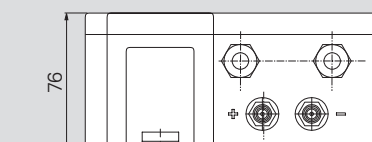
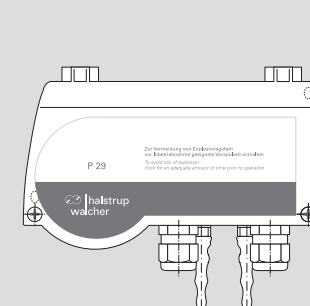
Features

- TÜV-tested differential pressure transmitter for natural gas
- Design changes and technical modifications keep ignition source and gas mixture safely separated (not suitable for Ex-applications)
- Scalable measurement range and display
- For pressure and volume flow measurement
- Zero-point correction prevents zero-point drift
- Built-in valve provides a high level of overload protection
- Also suitable for top-hat rail mounting
- Multilingual menu (English/French/German/Italian)

P 29 with display



P 29 without display











Cutting ring connector (optional)

Laboratory nozzle in accordance
with DIN 12898

All dimensions in mm

MEASUREMENT OF DIFFERENTIAL PRESSURE

Measurement of differential pressure is useful in a broad range of applications. It is used in ventilation and air-conditioning technology but also in many areas of air handling process technology. The next pages show a number of these. halstrup-walcher offers a wide range of products for stationary measurement of differential pressure:

| Product | PUC24 | PUC28(K) | P26 | P34 | P29 | PU/PI/PIZ | PS27 | REG21 |
|--|---|---|---|---|---|---|---|---|
| |  |  |  |  |  |  |  |  |
| Application | Process monitoring for clean-rooms (Pa, °C, % rH), with stainless steel front | Process monitoring panel aluminium, anodised (optional: with calibration port) (Pa, °C, % rH) | High precision, freely scalable pressure transmitter for critical applications | Measuring transmitter with very small dimensions – ideal for the control cabinet | High precision, freely scalable pressure transmitter for natural gas | For standard applications. PIZ: in two wire technology | A basic sensor for simple applications | Measurement and regulation of pressure |
| Housing installation | Installed in wall (panel) | | Mounted on a wall/top-hat rail | | | | | Rack |
| Max. measurement range | ± 250 Pa | | ± 100 kPa | | 0 .. 10 kPa | ± 100 kPa | | |
| Min. measurement range | ± 100 Pa | | ± 10 Pa | | 0 .. 250 Pa | ± 50 Pa | | |
| Margin of error (0.3 Pa margin of error for the reference) | ± 0.5 % FS ¹⁾ (standard) | | ± 0.2 % FS ¹⁾ (optional) ± 0.5 % FS (standard) | | ± 0.2 % FS ¹⁾ (optional) ± 0.5 % FS (standard) | ± 0.2 % FS ²⁾ ± 0.5 % FS ± 1 % FS | ± 2 % (≥ 100 Pa) or ± 3 % (for 50 Pa) of the set value | ± 0.5 % FS ± 1 % FS |
| Square-root (volume flow) | - | - | ✓ | ✓ ³⁾ | ✓ | - | - | - |
| Display | ✓ | ✓ | optional | - | optional | optional | optional | ✓ |

¹⁾ for measurement ranges ≤ 50 kPa

²⁾ for measurement ranges ≥ 250 Pa and ≤ 50 kPa

³⁾ optionally with stat. pressure sensor and temperature analogue output for compensation

ACCESSORIES

Certificates (see p.42)

DAkkS calibration certificate
ISO factory calibration certificate

Order no.

9601.0003
9601.0002

User software

You can set the parameters for our instruments or monitor and record measurements using a PC via a USB or RS232 interface. These features are supported by our free user software. This also allows you to transfer your settings to other devices by saving and reusing them.

Connecting components

| | |
|--|-----------|
| Silicone tubing ID 5 mm, OD 9 mm, red (please state length required) | 9601.0160 |
| Silicone tubing ID 5 mm, OD 9 mm, blue (please state length required) | 9601.0161 |
| Norprene tubing (please state length required) | 9061.0132 |
| Y-piece for tubing | 9601.0171 |

Our user software is compatible with the following pressure transmitters: PUC24, PUC28(K), P26, P34 and P29.

You can download the file here:

www.halstrup-walcher.de/en/software

Pressure ports

We can supply a wide range of customer-specific pressure ports, e.g. various cutting ring couplings or hose connectors.

| | |
|--|--|
| Measurement ranges (also \pm measurement ranges) others available upon request | 10/50/100/250/500 Pa 1/2.5/5/10/20/50/100 kPa freely scalable from 10 .. 100 % within a measurement range |
| Margin of error (0.3 Pa margin of error for the reference) | $\pm 0.2\%$ FS (for measurement ranges ≤ 50 kPa) or $\pm 0.5\%$ FS |
| Temperature coefficient span | 0.03 % FS/K (10 .. 50 °C) |
| Temperature coefficient zero point | $\pm 0\%$ (cyclical zero-point correction) |
| Max. system pressure/ Overload capacity | 600 kPa for measurement ranges ≥ 2.5 kPa 200 x for measurement ranges < 2.5 kPa |
| Medium | air, all non-aggressive gases |
| Sensor response time | 25 ms |
| Time constants | 25 ms .. 40 s (adjustable) |
| Operating temperature | 10 .. 50 °C |
| Storage temperature | -10 .. 70 °C |
| Power consumption | approx. 6 VA |
| Weight | approx. 750 g |
| Cable glands | 3 x M16 |
| Pressure ports | for tubing NW 6 mm, others available on request |
| Protection class | IP65, with USB: IP40 |
| Certificates | CE |

| Output (linear/ root-extracted) ¹⁾ | A |
|--|---|
| 0 .. 10 V ($R_L \geq 2$ k Ω) | 1 |
| 0 .. 20 mA ($R_L \leq 500$ Ω) | 0 |
| 4 .. 20 mA ($R_L \leq 500$ Ω) | 4 |
| ± 5 V ($R_L \geq 2$ k Ω) | 5 |

¹⁾ output signals can be configured freely

| Measurement range | C |
|---|---|
| Measurement range e.g. 0 .. 10 Pa, -10 .. 50 mbar, ± 100 mmHg (etc.) | |

| Display + keyboard | E |
|------------------------------------|----|
| none | 0 |
| multi-coloured LCD and keyboard | LC |

| Data interface | G |
|---|----|
| none | 0 |
| USB (data cable supplied) | U0 |
| External zero-point calibration ³⁾ | 0X |
| External zero-point calibration ³⁾ and USB (data cable supplied) | UX |

³⁾ Supply voltage of 24 V DC required

| Order code | A | B | C | D | E | F | G |
|------------|---|---|---|---|---|---|---|
| P 26 | - | - | - | - | - | - | - |

Can be pre-set on request:
Time constant, relay parameter, analogue output root-
extracted / linear, deactivation of the cyclic zeroing

| Power supply | B |
|--|---------|
| 24 VAC/DC $\pm 10\%$ | 24ACDC |
| 24 VAC + 6 % (with galvanic separation) | 24AC |
| 230/115 VAC -15 % | 230/115 |

| Margin of error | D |
|-------------------|---|
| $\pm 0.2\%$ of FS | 2 |
| $\pm 0.5\%$ of FS | S |

²⁾ for measurement ranges ≤ 50 kPa

| Contact points | F |
|--|---|
| none | 0 |
| air meter | 1 |
| 2 relays (changeover contacts) max. 230 VAC, 6 A | 2 |



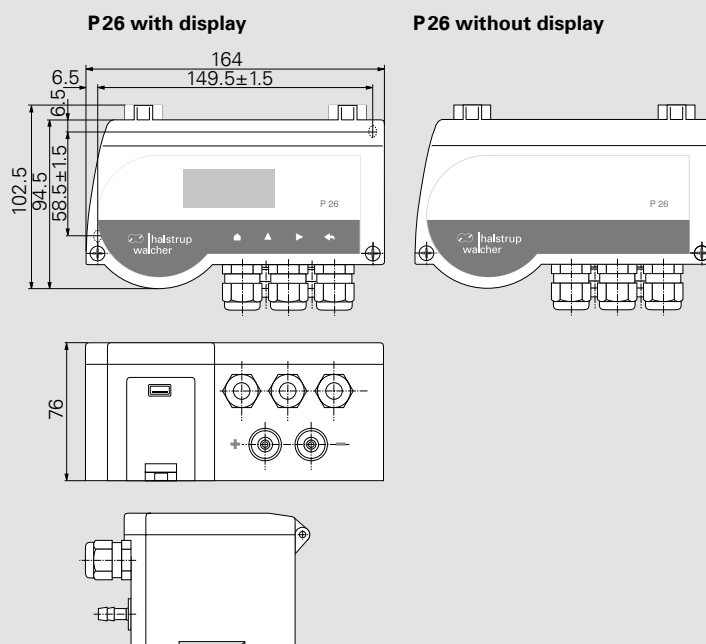
Picture: Version with display

Features

- High precision differential pressure transmitter for air-conditioning, cleanroom and process
- Top-hat rail or wall mounting
- Wide range of units for pressure and volume flow
- Also \pm measurement ranges
- Scalable measurement ranges and units
- Zero-point correction prevents zero-point drift
- Built-in valve provides a high level of overpressure protection
- Multilingual menu (English/French/German/Italian)

Optional









- Contact points with adjustable switching outputs
- Set the zero-point via an external interface
- USB interface (free parameterisation software at www.halstrup-walcher.de/en/software)
- Air meter function (see p. 39)



MEASUREMENT OF DIFFERENTIAL PRESSURE

Measurement of differential pressure is useful in a broad range of applications. It is used in ventilation and air-conditioning technology but also in many areas of air handling process technology. The next pages show a number of these. You can find more information about our pressure sensor technology on p.6.

halstrup-walcher offers a wide range of products for stationary measurement of differential pressure:

| Product | PUC24 | PUC28(K) | P26 | P34 | P29 | PU/PI/PIZ | PS27 | REG21 |
|--|---|---|---|---|--|---|---|---|
| Details on | p. 14 | p. 15 | p. 16 | p. 17 | p. 18 | p. 19 | p. 20 | p. 21 |
| |  |  |  |  |  |  |  |  |
| Application | Process monitoring for clean-rooms (Pa, °C, % rH), with stainless steel front | Process monitoring panel aluminium, anodised (optional: with calibration port) (Pa, °C, % rH) | High precision, freely scalable pressure transmitter for critical applications | Measuring transmitter with very small dimensions – ideal for the control cabinet | High precision, freely scalable pressure transmitter for natural gas | For standard applications. PIZ: in two wire technology | A basic sensor for simple applications | Measurement and regulation of pressure |
| Housing installation | Installed in wall (panel) | | Mounted on a wall/top-hat rail | | | | | Rack |
| Max. measurement range | ± 250 Pa | | ± 100 kPa | | 0.. 100 kPa | ± 100 kPa | | |
| Min. measurement range | ± 100 Pa | | ± 10 Pa | | 0.. 250 Pa | ± 50 Pa | | |
| Margin of error (0.3 Pa margin of error for the reference) | ± 0.5 % FS ¹⁾ (standard) | | ± 0.2 % FS ¹⁾ (optional) ± 0.5 % FS (standard) | | ± 0.2 % FS ¹⁾ (optional) ± 0.5 % FS (standard) | ± 0.2 % FS ²⁾ ± 0.5 % FS ± 1 % FS | ± 2 % (≥ 100 Pa) or ± 3 % (for 50 Pa) of the set value | ± 0.5 % FS ± 1 % FS |
| Square-root (volume flow) | - | - | ✓ | ✓ ³⁾ | ✓ | - | - | - |
| Display | ✓ | ✓ | optional | - | optional | optional | optional | ✓ |

¹⁾ for measurement ranges ≤ 50 kPa

²⁾ for measurement ranges ≥ 250 Pa and ≤ 50 kPa

³⁾ optionally with stat. pressure sensor and temperature analogue output for compensation

ACCESSORIES

Certificates (see p.42)

DAkkS calibration certificate (German)
DAkkS calibration certificate (English)
ISO factory calibration certificate

Order no.

9601.0003
9601.0004
9601.0002

User software

You can set the parameters for our instruments or monitor and record measurements using a PC via a USB or RS232 interface. These features are supported by our free user software. This also allows you to transfer your settings to other devices by saving and reusing them.

Our user software is compatible with the following pressure transmitters: PUC24, PUC28(K), P26, P34 and P29.

You can download the file here:

www.halstrup-walcher.de/en/software

Connecting components

| | |
|--|-----------|
| Silicone tubing ID 5 mm, OD 9 mm, red (please state length required) | 9601.0160 |
| Silicone tubing ID 5 mm, OD 9 mm, blue (please state length required) | 9601.0161 |
| Norprene tubing (please state length required) | 9061.0132 |
| Y-piece for tubing | 9601.0171 |

Pressure ports

We can supply a wide range of customer-specific pressure ports, e.g. various cutting ring couplings or hose connectors.

| | |
|---|--|
| Margin of error (0.3 Pa margin of error for the reference) | ± 1% of measurement range Reference ± 0.5 hPa with respect to sea level |
| Temperature coefficient span | 0.04 % / K (10 .. 60 °C) |
| Calibration temperature | 22 °C |
| Operating temperature | 10 .. 60 °C |
| Storage temperature | -10 .. 70 °C |
| Signal stability | 0.3 hPa/year |
| Reduction | 0 .. 850 m above sea level (please indicate when placing your order) |
| Power consumption | approx. 3 VA |
| Cable glands | 2 x PG 7 (housing without display) 2 x PG11 (housing with display) |
| Protection class | IP 54 |
| Weight | approx. 0.6 kg |
| Pressure ports ¹⁾ | for tubing NW 6 mm |
| Certificates | CE |

¹⁾ AD 1000: 1 pressure port, BA 1000: no pressure port

| Product | Measurement range | A |
|---------|-------------------|------|
| AD 1000 | 0 .. 50 kPa | 50A |
| | 0 .. 100 kPa | 100A |
| | 80 .. 120 kPa | 80A |
| | 90 .. 110 kPa | 90A |
| | 100 .. 0 kPa | 0A |
| BA 1000 | 80 .. 120 kPa | 80B |
| | 85 .. 115 kPa | 85B |
| | 90 .. 110 kPa | 90B |
| | 95 .. 115 kPa | 95B |

| Output | B |
|--|---|
| 0 .. 10 V ($R_L \geq 2 \text{ k}\Omega$) | 1 |
| 0 .. 20 mA ($R_L \leq 500 \Omega$) | 0 |
| 4 .. 20 mA ($R_L \leq 500 \Omega$) | 4 |

| Power supply | C |
|----------------------------------|-----|
| 24 VDC, +20 % / -15 % | 24D |
| 24 VAC, +6 % / -15 % (50/60 Hz) | 24A |
| 115 VAC, +6 % / -15 % (50/60 Hz) | 115 |
| 230 VAC, +6 % / -15 % (50/60 Hz) | 230 |

| LCD | D |
|-----------|---|
| none | 0 |
| 3 ½ digit | 3 |

| Reduction ²⁾ | E |
|--|---|
| none | 0 |
| please indicate in meters (e.g. 2 m) ²⁾ | |

²⁾ only for BA 1000

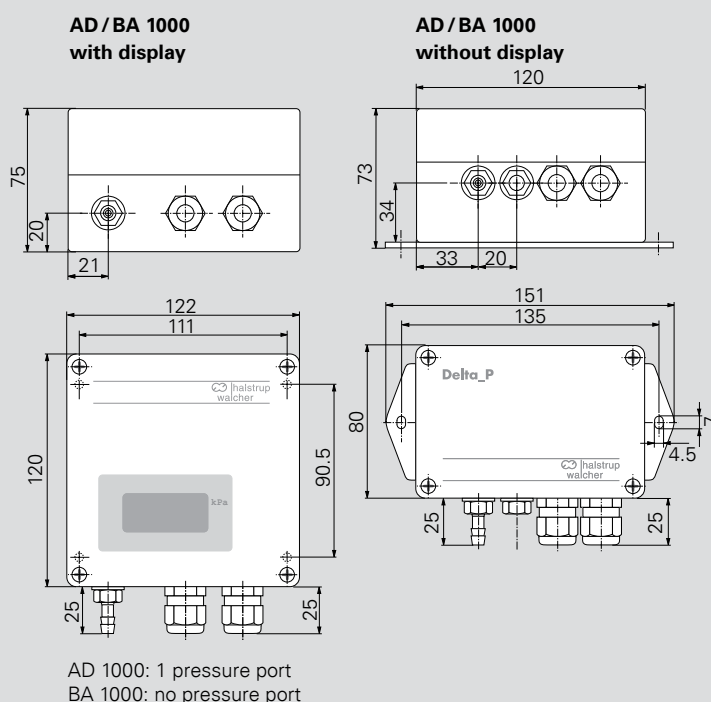
| Order code | A | B | C | D | E |
|------------|---|---|---|---|---|
| AD-BA 1000 | | | | | |

AD/BA 1000



Features


- Precise absolute pressure transmitter
- AD: for absolute pressure
- BA: for atmospheric pressure
- High level of accuracy and long-term stability
- Little zero-point drift or hysteresis; largely independent of temperature
- The size of the optional display can be adjusted (reduced) in the factory to correspond to the height of the installation site, see DIN ISO 2533 (only BA 1000)



AD 1000: 1 pressure port
BA 1000: no pressure port

ABSOLUTE PRESSURE TRANSMITTERS

Absolute pressure measurements are essential for determining atmospheric pressure. Here, the current pressure is compared with a vacuum. Atmospheric pressure measurements record (weather-dependent) ambient pressures, i.e. approx. 1 013.25 hPa \pm 50 hPa. Absolute pressure measurements are also able to compare other pressure values to the vacuum – depending on the selected pressure range (e.g. 75 hPa).

| Product | AD 1000 | BA 1000 |
|-------------------|---|--|
| Details on | p. 32 | p. 32 |
| |  | |
| Features | Absolute pressure transmitter | Atmospheric pressure transmitter |
| Measurement range | 0..50 kPa 0..100 kPa 80..120 kPa 90..110 kPa 100..0 kPa | 80..120 kPa 85..115 kPa 90..110 kPa 95..115 kPa |
| Margin of error | \pm 1 % of measurement range Reference \pm 0.5 hPa with respect to sea level | |
| Display | 3 ½ digit (optional) | |

ACCESSORIES

DAkKS calibration certificate, German (see p. 42)

DAkKS calibration certificate, English (see p. 42)

ISO factory calibration certificate

Connecting components (tubing etc.)

Order no.

9601.0003

9601.0004

9601.0002

see p. 11

APPLICATION

Weather forecasting is one area where it is vital to be able to measure atmospheric pressure accurately. Air-conditioning systems, too, often measure the current level of atmospheric pressure in order to avoid excessive differences in pressure, e.g. in entrance areas/air curtains.

Precise measurements of absolute pressure are also vital in many scientific and production processes – wherever it is essential to have a (weather-independent) process pressure value. This is frequently required, e.g. for pressure compensation of volume flow measurements.

