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DIFFERENTIAL PRESSURE TRANSMITTERS

Date: 04 / 2015 - Subject to technical changes without notice

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 table below shows a number of these. You can find more information about pressure sensor technology on p. 6.

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

	PUC 24	PUC 28 (K)	P 26	P 34	P 29	PU / PI / PIZ	P 82 R (M)	PS 27	REG 21
Details on	p. 24	p. 25	p. 26	p. 27	p. 28	p. 29	p. 30	p. 31	p. 32
									
Application	Process monitoring for clean-rooms (Pa, °C, % rH), with stain-less steel front	Process monitoring panel (optional: with calibration port) (Pa, °C, % rH), aluminium, anodised	High precision, scalable differential pressure transmitter	Measuring transmit-ter with very small dimensions – ideal for the control cabinet	Like P 26, for natural gas	For standard applications. PIZ: PI in two wire technology	Square-root standard differential pressure transmitter	A basic sensor for simple appli-cations	Measure-ment 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			± 100 kPa	± 20 kPa	± 100 kPa	
Min. measurement range	± 100 Pa		± 10 Pa		± 250 Pa	± 50 Pa	± 100 Pa	± 50 Pa	
Degree of measurement uncertainty	0.5 % [1] (standard)	0.5 % [1] (standard)	0.2 % of the scaled range (40 .. 100 % of max. value) [2] (optional) 0.5 % of the scaled range (40 .. 100 % of max. value) [2] (standard)		0.2 % [1] (optional) 0.5 % [1] (standard)	0.2 % [1] [2] [3] 0.5 % [1] [2] 1 % [1]	1 % [1]	2 % (≥ 100 Pa) or 3 % (for 50 Pa) of the set value	0.5 % [1] [2] 1 % [1]
Square-root (volume flow)	-	-	✓	✓ [4]	✓	-	✓	-	-
Display	✓	✓	optional	-	optional	optional	optional	optional	✓

[1] max. value of upper range value [2] but not less than 0.3 Pa [3] for measurement ranges ≥ 250 Pa only
[4] optionally with stat. pressure sensor and temperature analogue input for compensation

ACCESSORIES

Certificates	**Order no.**
DAkkS calibration certificate (German)	9601.0003
DAkkS calibration certificate (English)	9601.0004
ISO factory calibration certificate	9601.0002

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.

MEASUREMENT OF DIFFERENTIAL PRESSURE AND REGULATION OF PRESSURE

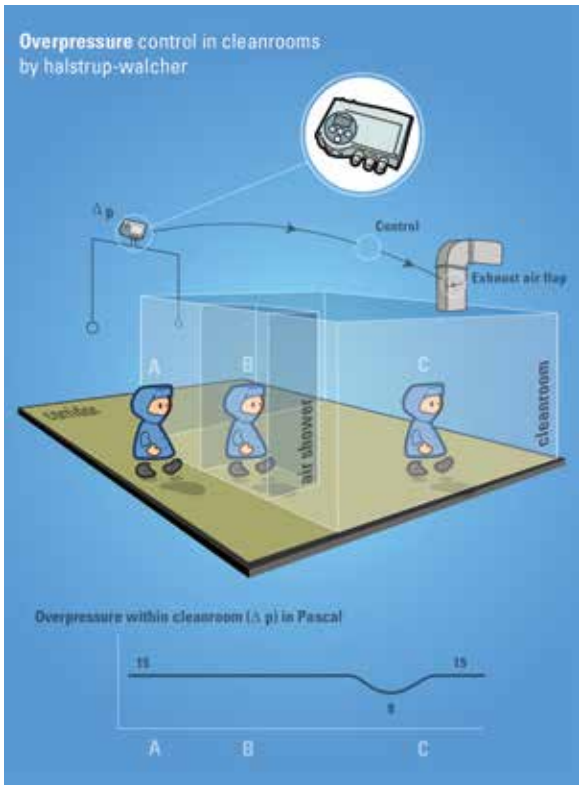
... IN CLEANROOMS

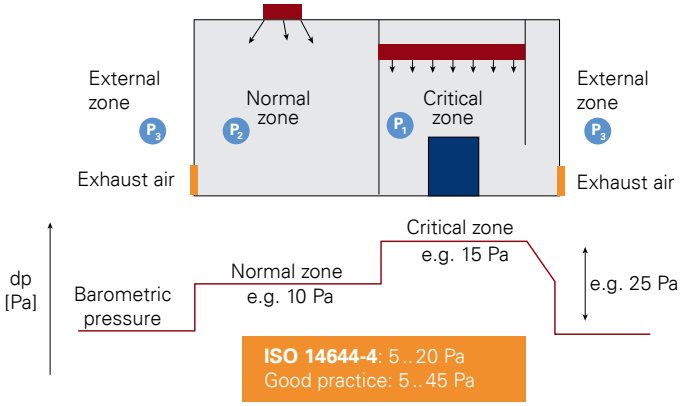
In cleanrooms, it is vital to prevent contaminated air flowing in from corridors or areas with lower cleanroom classifications. This can be achieved by **maintaining a continuous overpressure** inside the cleanroom. The heart of this system is a high-precision differential pressure transmitter operating in the low Pascal range

- → for installation in a wall (panel), (e.g. PUC, see p. 24 and p. 25)
- → for installation in a control cabinet (top hat rail) (e.g. P26, see. p. 26)
- → for mounting on a wall (e.g. P26, see. p. 26)

The standard ISO 14644 requires continuous monitoring and regulation of pressure for all cleanrooms. In addition, spot checks must be performed at regular intervals.

- → use of the KAL portable, high precision calibration and measurement device (see p. 44 and 45)

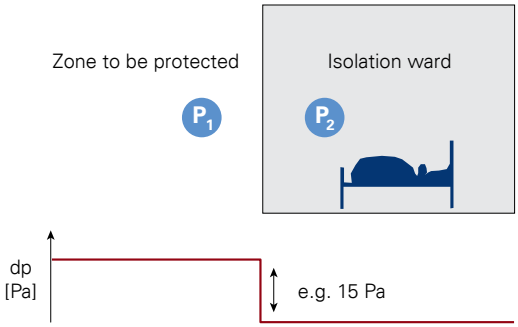




... IN HOSPITALS

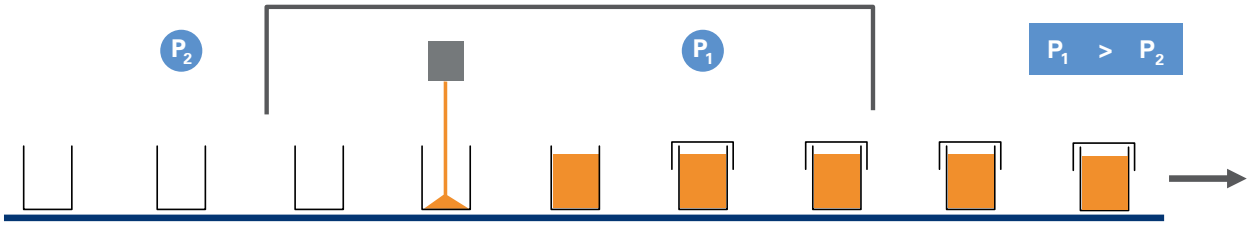
Excluding air that contains bacteria can be a matter of life and death, especially in hospitals, e.g. operating theatres. Here, too, this is achieved by ensuring a constant **overpressure** in the room that prevents contaminated air entering it from surrounding areas.

The opposite applies to isolation wards, which are used to prevent the spread of epidemics. In this case, the room must be kept at a constant **underpressure** relative to its surroundings in order to prevent bacteria/viruses escaping.



MEASUREMENT OF DIFFERENTIAL PRESSURE AND REGULATION OF PRESSURE

... IN FILLING MACHINES AND HYGIENIC PLANTS



Hygiene and bacteria-free environments are key requirements in both the pharmaceutical and food processing industries. This is achieved through selecting the appropriate materials and time-consuming cleaning processes. But what happens if the goods being protected come into contact with the surrounding air? If this air has not been correctly processed, it will transport microbes and other contaminants (oil aerosols, particles etc.) directly to the endangered product.

For larger hygienic production plants, the construction of whole cleanrooms is a viable option. However, this approach may be inefficient if only a small, enclosable hygienic area is required. The solution to this problem was the development of *"mini-environments"* – isolated, hygienic areas. These ensure that no microbes or contaminants are able to penetrate the protected area.

Measurement and regulation of differential pressure are the keys to maintaining a constant and safe **overpressure** within the mini-environment. Long-term stability is critical in order to prevent unplanned decreases in pressure over time. halstrup-walcher is a specialist in this type of application and offers

- → for mounting on walls or top-hat rails: P 26 (see p. 26)
- → for mounting in walls (panel version): PUC 24 or PUC 28 K (see p. 24/25)

The **pressure** in the filling room must be **higher** than that of the surrounding areas or particles/oil etc. may enter the zone in which the product is being handled.

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PUC 24

Measurement ranges	± 100 Pa or ± 250 Pa freely scalable within this range
Margin of error	0.5 % of max. value
Temperature coefficient span	0.03 % of max. value/K (10 .. 50 °C)
Temperature coefficient zero point	± 0 % (cyclical zero-point correction)
Overload capacity	200 x
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa
Sensor response time	25 ms
Time constants	25 ms .. 40 s (adjustable)
Input signal humidity/temperature module (galvanically separated)	0 .. 10 V, R_i = 470 kΩ 0/4 .. 20 mA, R_i = 50 Ω adjustable
Operating temperature	10 .. 50 °C
Storage temperature	-10 .. 70 °C
Power consumption	approx. 7 VA
Weight	approx. 1 kg
Pressure ports	for tubing NW 3 .. 6 mm
Protection class	IP 65 (recessed in the wall)
Certificates	CE

Supply voltage
24 V DC, ± 10 % smoothed

Output
0 .. 10 V (R_i > 2 kΩ) 0/4 .. 20 mA (R_i < 500 Ω) adjustable
2 contact points, 6 A, 230 V AC, may be configured as desired within this pressure range

Measurement range	**A**
± 100 Pa	0
± 250 Pa	1

Data interface	**B**
None	0
PROFIBUS DP (optional)	DP
RS 232 (optional)	2

Bus connection	**C**
None	0
9-pin Sub-D flush type connector [1]	D
Sub-D plug with 150 mm cable	DK
Round pin connector M 12 with 150 mm cable	RK

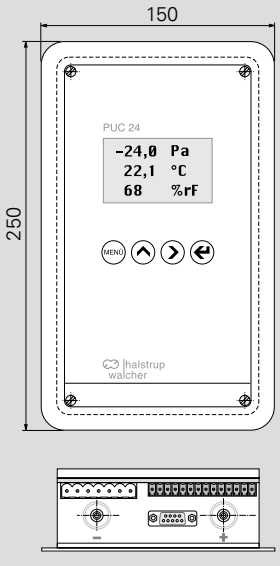
[1] not suitable for wall thicknesses greater than 5 mm

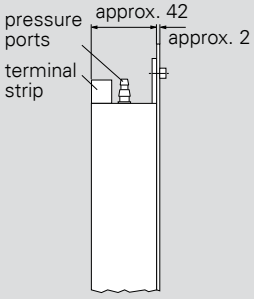
Order code	**A**	**B**	**C**
PUC 24	–	–	–

Can be pre-set on request:
Time constant, relay parameter, analogue output, deactivation of the cyclic zeroing (only for PROFIBUS DP)

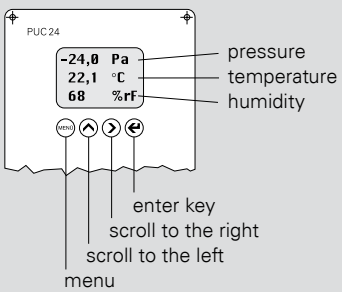
Features

- Cleanroom panel (stainless steel) for displaying air-conditioning data
- Integrated, high precision measurement of differential pressure
- % rH/°C pressure transmitter, switchable (independent of manufacturer)
- Optimum cleanroom design (TU Munich/Weihenstephan)
- Solvent resistant stainless steel surface
- 3 analog outputs, optional digital interface
- Acoustic alarm when the threshold value is exceeded, acknowledgement via key
- Optical alarm signal if critical values are exceeded; the display values are shown cyclically inversed/normal
- Bilingual menu (German/English) (others on request)
- Two contact points (6 A/230 V AC)
- Two adjustable limit switches permit the connection of signalling devices and save additional wiring (optional)





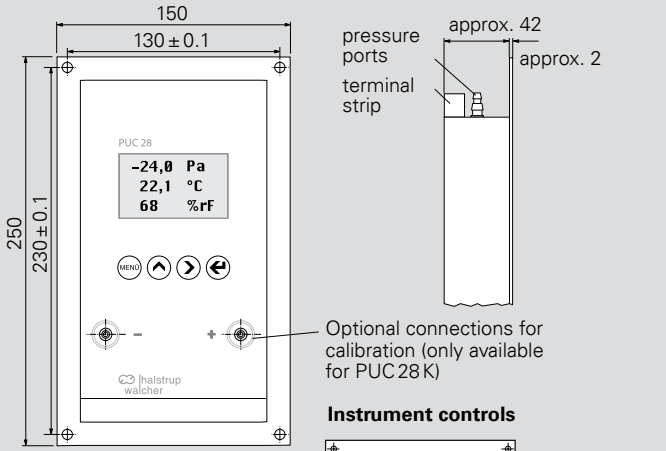
Instrument controls



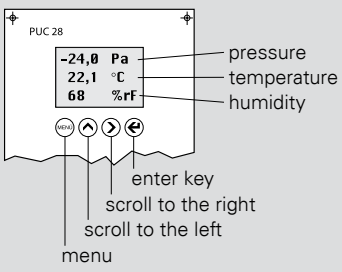
PUC 28 / PUC 28 K

Features

- Process panel (Aluminium, anodised) for displaying air-conditioning data
- Integrated, high precision measurement of differential pressure
- % rH / °C pressure transmitter, switchable (independent of manufacturer)
- Anodised, aluminium housing with easy-to-clean front surface
- With external calibration ports *(design "K")*, for on-site calibration without disassembly
- 3 analog outputs, optional digital interface
- Acoustic alarm when the threshold value is exceeded, acknowledgement via key
- Optical alarm signal if critical values are exceeded; the display values are shown cyclically inversed / normal
- Bilingual menu (German / English) (others on request)
- Two contact points (6 A / 230 V AC)
- Two adjustable limit switches permit the connection of signalling devices and save additional wiring (optional)



Instrument controls



Measurement ranges	± 100 Pa or ± 250 Pa freely scalable within this range
Margin of error	0.5 % of max. value
Temperature coefficient span	0.03 % of max. value / K (10 .. 50 °C)
Temperature coefficient zero point	± 0 % (cyclical zero-point correction)
Overload capacity	200 x
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa
Sensor response time	25 ms
Time constants	25 ms .. 40 s (adjustable)
Input signal humidity / temperature module (galvanically separated)	0 .. 10 V, R_i = 470 kΩ 0/4 .. 20 mA, R_i = 50 Ω adjustable
Operating temperature	10 .. 50 °C
Storage temperature	-10 .. 70 °C
Power consumption	approx. 7 VA
Weight	approx. 1 kg
Pressure ports	for tubing NW 3 .. 6 mm
Protection class	IP 65 (recessed in the wall)
Certificates	CE

Supply voltage
24 V DC, ± 10 % smoothed

Output
0 .. 10 V (R_i > 2 kΩ) 0/4 .. 20 mA (R_i < 500 Ω) adjustable
2 contact points, 6 A, 230 V AC, may be configured as desired within this pressure range

Model	Measurement range	A
PUC 28	± 100 Pa	0
PUC 28	± 250 Pa	1
PUC 28 K [1]	± 100 Pa	K 2
PUC 28 K [1]	± 250 Pa	K 3

[1] "K": with externally accessible (no disassembly) pressure calibration ports (see photo)

Data interface	**B**
None	0
PROFIBUS DP (optional)	DP
RS 232 (optional)	2

Bus connection	**C**
None	0
9-pin Sub-D flush type connector [2]	D
Sub-D plug with 150 mm cable	DK
Round pin connector M 12 with 150 mm cable	RK

[2] not suitable for wall thicknesses greater than 5 mm

Order code	A	B	C
PUC 28	–	–	–

Can be pre-set on request:
Time constant, relay parameter, analogue output, deactivation of the cyclic zeroing (only for PROFIBUS DP)

P 26

For P 26 with air meter function see p. 14

Measurement ranges (also ± 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 reference)	± 0.2 % or ± 0.5 % of the scaled range (40 .. 100 % of max. value) (min. 0.3 Pa)
Temperature coefficient span	0.03 % of max. value/K (10 .. 50 °C)
Temperature coefficient zero point	± 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 M 16
Pressure ports	for tubing NW 6 mm, others available on request
Protection class	IP 65, with USB: IP 40
Certificates	CE, CSA

Output (linear/ root-extracted) [1]	A
0 .. 10 V (R_L ≥ 2 kΩ)	1
0 .. 20 mA (R_L ≤ 500 Ω)	0
4 .. 20 mA (R_L ≤ 500 Ω)	4
± 5 V (R_L ≥ 2 kΩ)	5

[1] output signals can be configured freely

Power supply	B
24 V AC/DC	24ACDC
24 V AC (with galvanic separation)	24AC
230/115 V AC	230/115

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

Margin of error	D
± 0.2 % [2]	2
± 0.5 % [2]	S

[2] of the scaled range (40 .. 100 % of max. value) (min. 0.3 Pa)

Display, Keyboard	E
none	0
multi-coloured LCD and keyboard	LC

Contact points	F
none	0
Air meter (see p. 14)	1
2 relays (changeover contacts) max. 230 V AC, 6 A	2

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

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

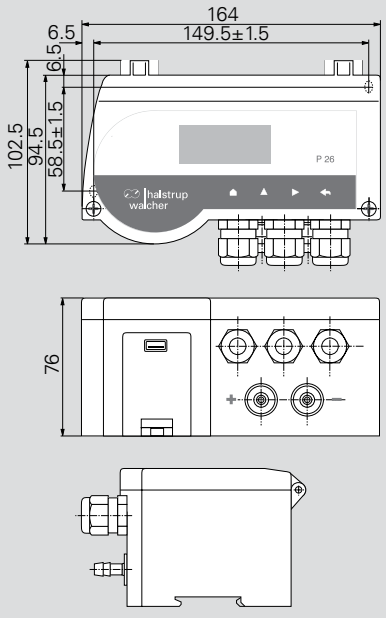
Features

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

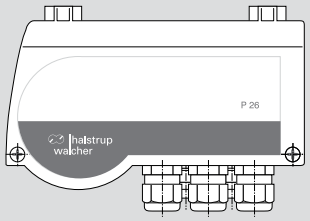
Optional

- Contact points with adjustable switching outputs
- Set the zero-point via the interface
- USB interface (free parameterisation software at www.halstrup-walcher.com)
- Air meter function (see p. 14)

P 26 with display



P 26 without display



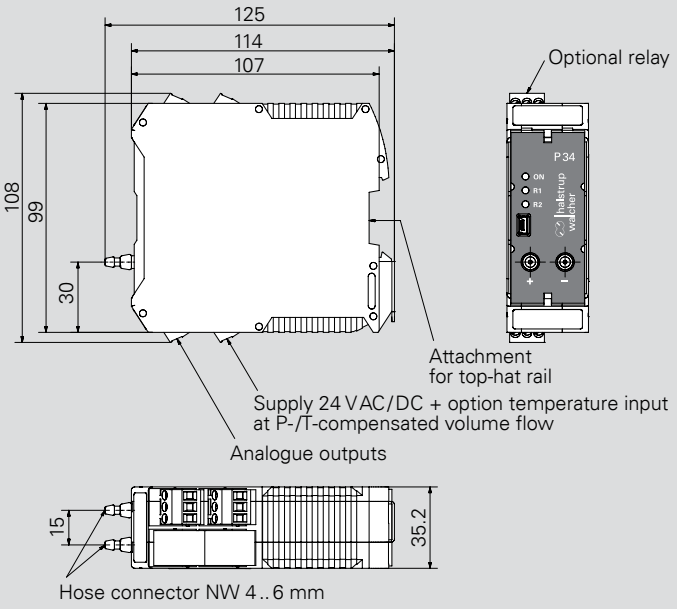
P 34

Features

- Differential pressure transmitter with very small dimensions – ideal for control cabinet installation
- Optionally with temperature analogue input and internal stat. pressure sensor for P-/T-compensated volume flow
- Optionally with relay
- Volume flow can be configured via k-factor, dPmax/Vmax or 20 individual values
- With USB interface: via PC-software (password-protected), scaling, characteristic line form and many other parameters can be set
- Delivery possible already completely integrated into the control cabinet (on request)

Easy Mounting:

The differential pressure transmitter P34 is particularly developed for space-saving mounting in control cabinets.



Measured data differential pressure

Measurement ranges (also ± 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 reference)	± 0.2 % or ± 0.5 % of the scaled range (40..100 % of max. value) (min. 0.3 Pa)
Temperature coefficient span	0.03 % v. E./K (10..50 °C)
Temperature coefficient zero point	± 0 % (cyclical zero-point correction)
Max. system pressure/ Overload capacity	400 kPa measurement ranges ≥ 2.5 kPa 200 x measurement ranges < 2.5 kPa
Medium	Air, all non-aggressive gases
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. 450 g
Connections	Screw terminals (connection capacity 0.25.. 2.5 mm²)
USB interface	USB 2.0 Full-Speed Slave (Mini USB)
Pressure ports	for tubing NW 4..6 mm
Protection class	IP20
Certificates	CE

Measured data for P-/T-compensated volume flow (optional)

Measured range absolute pressure	200 kPa
Accuracy absolute pressure	± 2.0 % of max. value
Temperature input	4..20 mA, R_i = 130 Ω Temperature range freely scalable

Power supply
24 VAC/DC ± 10 %

Output (linear / root extracted)	**A**
0..10 V (R_L ≥ 2 kΩ)	1
0..20 mA (R_L ≤ 500 Ω)	2
4..20 mA (R_L ≤ 500 Ω)	3

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

Margin of error	**C**
± 0.2 % [2]	2
± 0.5 % [2]	5

[2] of the scaled range (40..100 % of max. value) (min. 0.3 Pa)

Contact points	**D**
none	0
2 relays (changeover contacts) max. 230 VAC, 6 A	2

Application	**E**
Standard	A
P-/T-compensated volume flow	B

Order code	**A**		**B**		**C**		**D**		**E**
P34	–		–		–		–		–

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

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P 29

Measurement ranges others available upon request	250/500 Pa 1/2.5/5/10/20/50/100 kPa freely scalable from 10..100 % within a measurement range
Margin of error	±0.2 % of max. value or ±0.5 % of max. value
Temperature coefficient span	0.03 % of max. value/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, EN1127-1:2007

Output (linear/ root-extracted) [1]	A
0..10 V (R_L ≥ 2 kΩ)	1
0..20 mA (R_L ≤ 500 Ω)	0
4..20 mA (R_L ≤ 500 Ω)	4
±5 V (R_L ≥ 2 kΩ)	5

[1] output signals can be configured freely

Power supply	B
24 V DC	24 DC

Measurement range	C
Measurement range e.g. 0..250 Pa, -10..50 mbar, 0..100 mmHg (etc.)	

Margin of error	D
± 0.2 % of max. value	2
±0.5 % of max. value	S

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

Order code	A	B	C	D	E	F
P 29	–	–	–	–	–	–

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

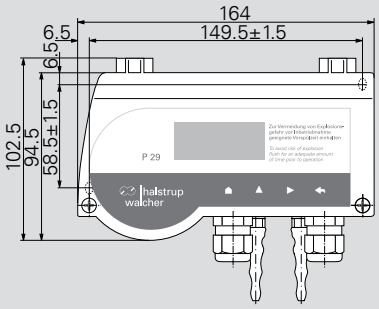
TÜV-tested:

As long as a specified flushing process is observed, special electronic encapsulation safely separates any ignition sources from natural gas.

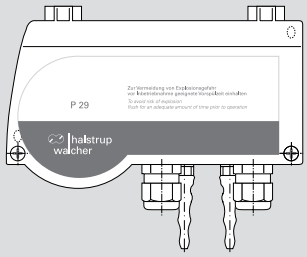
Features

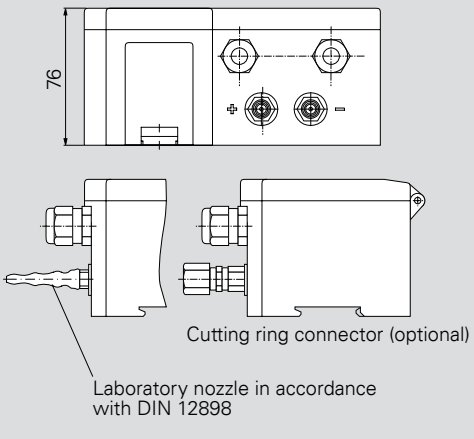
- TÜV-tested differential pressure transmitter for natural gas
- Design changes and technical modifications keep ignition source and gas mixture safely separated (not suitable for Ex-applications)
- Also ± measurement ranges
- Scalable measurement range and display
- For pressure and volume flow measurement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

P29 with display



P29 without display



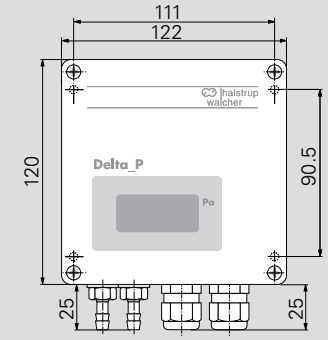


PU/PI/PIZ

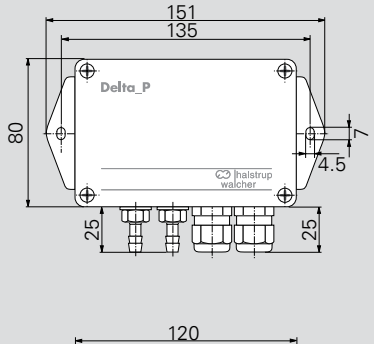
Features

- Differential pressure transmitter with linear curve for air-conditioning applications
- Also available as a two-wire system *("PIZ" model)*
- Also for ± measurement ranges and asymmetric measurement ranges
- With optional LCD

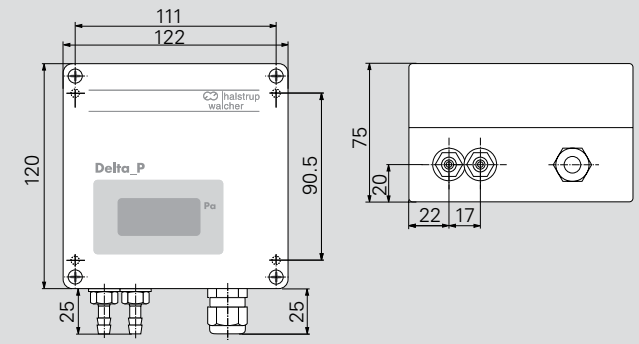
PU / PI with display



PU / PI without display



PIZ with display



Measurement ranges (also ± measurement ranges) others available upon request	50/100/250/500 Pa 1/2.5/5/10/20/50/100 kPa
Margin of error (0.3 Pa margin of error for the reference)	0.2 % of max. value only for measurement ranges ≥ 250 Pa or 0.5 % of max. value, min. 0.3 Pa or 1 % of max. value
Temperature coefficient span	0.04 % of max. value/K (10..60 °C)
Temperature coefficient zero point	0.04 % of max. value/K (10..60 °C)
Zero point stability	0.5 % of max. value/year
Overload capacity	10 x for measurement ranges ≤ 20 kPa 2 x for measurement ranges > 20 kPa
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa for measurement ranges ≤ 10 kPa Max. nominal pressure of the sensor for measurement ranges above 10 kPa
Sensor response time	20 ms
Operating temperature	10..60 °C
Storage temperature	-10..70 °C
Power consumption	PU/PI: approx. 3 VA PIZ: max. 0.6 VA
Weight	approx. 0.8 kg
Cable glands others available upon request	PU/PI: 2xPG7 PIZ: 1xPG 7
Pressure ports	for tubing NW 6 mm
Protection class	IP65
Certificates	CE, CSA (only for PU/PI)

Output	**A**
0..10 V ($R_L \geq 2$ kΩ)	U
0..20 mA ($R_L \leq 500$ Ω)	I0
4..20 mA ($R_L \leq 500$ Ω)	I4
4..20 mA two-wire ($R_L \leq 50$ [UB (V) -10 (V)] Ω)	IZ

Measurement range	**B**
Measurement range e.g. 0..100 Pa, 0..60 mbar, ±110 mmHg (etc.)	

Margin of error	**C**
0.2 % of max. value only for measurement ranges ≥ 250 Pa	02
0.5 % of max. value min. 0.3 Pa	05
1 % of max. value	1

Supply voltage	**D**
24 V DC, +20 %/-15 % [1]	24D
24 V AC, +6 %/-15 % (50/60 Hz) [1]	24A
115 V AC, +6 %/-15 % (50/60 Hz) [1]	115
230 V AC, +6 %/-15 % (50/60 Hz) [1]	230
10..32 V DC (two-wire system)	PIZ

[1] not for PIZ

Time constant	**E**
none	0
1 s	1
2 s	2
5 s	5

LCD	**F**
none	0
3 ½ digit (see foto)	3
4 ½ digit (only for PU/PI)	4

Order code	**A**	**B**	**C**	**D**	**E**	**F**
P	–	–	–	–	–	–

Relay parameter can be pre-set on request.

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P 82 R / P 82 RM

Measurement ranges ΔP [1] others available upon request	100/250/500 Pa 1/2.5/5/10/20 kPa
Margin of error	1 % of max. value
Temperature coefficient span	0.04 % of max. value/K (10 .. 60 °C)
Temperature coefficient zero point	0.05 % of max. value/K (10 .. 60 °C)
Zero point stability	0.5 % of max. value/year
Overload capacity	5 x
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa for measurement ranges ≤ 10 kPa max. nominal pressure of sensor for measurement ranges above 10 kPa
Sensor response time	20 ms
Creep suppression	adjustable 0 .. 10 % of max. value
Operating temperature	10 .. 60 °C
Storage temperature	-10 .. 70 °C
Power consumption	approx. 3 VA
Weight	approx. 0.8 kg
Cable glands	2 x PG 11
Pressure ports	for tubing NW 6 mm
Protection class	IP 65
Certificates	CE, CSA

[1] Volume flow depending on primary element

Output (root extracted)	**A**
0 .. 10 V ($R_L \geq 5$ kΩ)	1
0 .. 20 mA ($R_L \leq 500$ Ω)	0
4 .. 20 mA ($R_L \leq 500$ Ω)	4

Power supply	**B**
24 V DC	24D
24 V AC	24A
115 V AC	115
230 V AC	230

Measurement range	**C**
Measurement range in m³/h, Pa, etc. (e.g. 0 .. 100 m³/h or 0 .. 210 Pa) Maximum value pair (m³/h//Pa) for volume flow measurement	

Time constants	**D**
none	0
1 s	1
2 s	2
5 s	5

LCD	**E**
none	0
3 1/2 digit (see foto)	3
4 1/2 digit	4

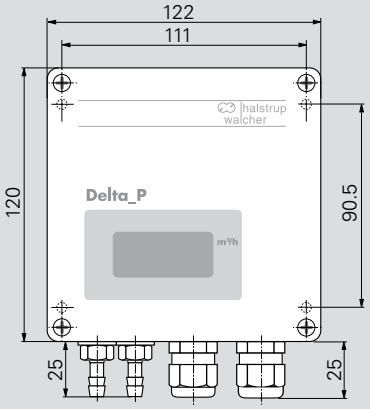
Order code	**A**		**B**		**C**		**D**		**E**
P 82 R / P 82 RM [2]		–		–		–		–	

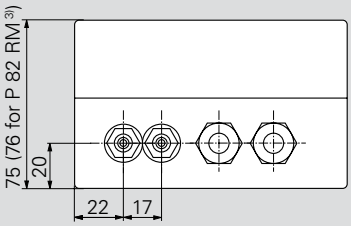
[2] with optional metal housing

Relay parameter can be pre-set on request.

Features

- Differential pressure transmitter with root-extracted curve for volume flow applications
- High level of accuracy and long-term stability
- Very little hysteresis; largely independent of temperature
- Easy-to-read display (optional)
- With optional metal housing (P 82 RM)





[3] with optional metal housing

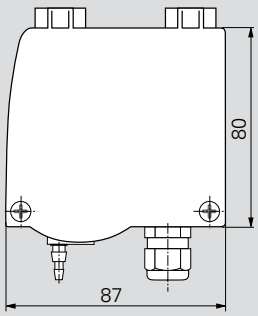
PLEASE NOTE: The P 82 R has been replaced by the P 26 / P34!

PS 27

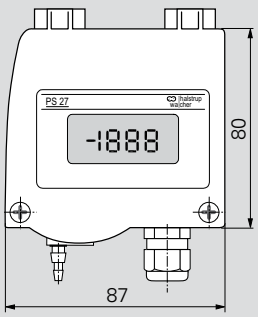
Features

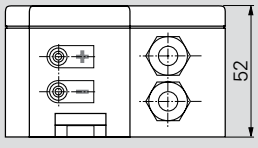
- Compact differential pressure transmitter for basic applications
- Also available with two-wire technology (optional)
- With optional display
- Either with one fixed measurement range or toggling between 4 different measurement ranges
- 4 measurement ranges can be selected via jumpers (optional)
- With ± measurement ranges and asymmetric measurement ranges
- With option relay (6 A)
- Suitable for top-hat rail mounting and wall surface installation

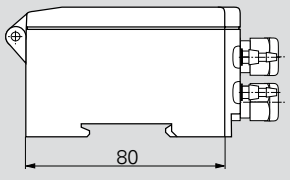
PS 27 without display



PS 27 with display







Measurement ranges (also ± measurement ranges) others available upon request	50/100/200/500 Pa 1/2.5/5/10/20/50/100 kPa
Margin of error	2 % of the set value for ≥ 100 Pa or 3 % of the set value for 50 Pa
Temperature coefficient span	0.1 % of max. value/K
Temperature coefficient zero point	0.1 % of max. value/K
Overload capacity	12 x for measurement ranges ≤ 20 kPa 4 x for measurement ranges ≥ 20 kPa
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa for measurement ranges ≤ 10 kPa max. nominal pressure of sensor for measurement ranges above 10 kPa
Sensor response time	20 ms
Time constants	20 ms..4 s adjustable (factory-provided)
Operating temperature	-20..60 °C with Display 0..50 °C
Storage temperature	-20..70 °C
Power consumption	approx. 1 VA
Weight	approx. 0.25 kg
Cable glands	2 x M12
Pressure ports	for tubing NW 4-6 mm
Protection class	IP 65
Certificates	CE

Output [1]	**A**
0..10 V (R_L ≥ 50 kΩ)	1
2..10 V (R_L ≥ 50 kΩ)	2
0..20 mA (R_L ≤ 500 Ω)	0
4..20 mA (R_L ≤ 500 Ω)	4
0..5 V (R_L ≥ 50 kΩ)	5

[1] the output signal can be configured using jumpers

Power supply	**B**
24 V AC/DC (without galvanic separation)	AC/DC
15 .. 32 V DC (two-wire) (only for A = 4)	ZWL

Measurement range	**C**
Standard (e.g. 0..100 Pa) [2]	
toggles between: 100/250/500/1 000 Pa	1
toggles between: 250/500/1 000/2 500 Pa	2
toggles between: 1/2.5/5/10 kPa	3
toggles between: 10/25/50/100 kPa	4

[2] others available upon request

Contact point	**D**
none	0
1 relay (changeover contacts) max. 230 V AC, 6 A (min. required switching capacity 300 mW) (not for two-wire)	1

LCD	**E**
none	0
4-digit	1

Order code	**A**		**B**		**C**		**D**		**E**
PS 27		–		–		–		–	

Can be pre-set on request:
Time constant and relay parameter

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REG 21

Measurement ranges others available upon request	50/100/250/500 Pa 1/2.5/5/10/20/50/100 kPa
Margin of error (0.3 Pa margin of error for the reference)	0.5 % of max. value, min. 0.3 Pa or 1 % of max. value
Temperature coefficient span	0.04 % of max. value/K (10 .. 60 °C)
Temperature coefficient zero point	±0 % (cyclical zero-point correction)
Overload capacity	200 x for measurement ranges < 2.5 kPa 600 kPa for measurement ranges ≥ 2.5 kPa
Medium	Air, all non-aggressive gases
Max. system pressure	10 kPa for measurement ranges ≤ 10 kPa Max. nominal pressure of sensor for measurement ranges above 10 kPa
Sensor response time	20 ms
Display	4 ½ digit
Time constants	adjustable up to 10 s
Operating temperature	10 ..60 °C
Storage temperature	-10 .. 70 °C
Power consumption	approx. 5 VA
Weight	approx. 0.8 kg
Pressure ports	for tubing NW 6 mm
Protection class	IP 50 (installed)
Certificates	CE

Output	**A**
0 .. 10 V (R_L ≥ 2 kΩ)	1
±5 V (R_L ≥ 2 kΩ)	5
0 .. 20 mA (R_L ≤ 500 Ω)	0
4 .. 20 mA (R_L ≤ 500 Ω)	4

Measurement range	**B**
Measurement range (e.g. 0 .. 100 Pa, -10 .. 40 mbar, 0 .. 200 mmHg etc.)	

Margin of error	**C**
0.5 % of max. value, min. 0.3 Pa	05
1 % of max. value (standard)	1

Power supply	**D**
24 V DC, +20 %/-15 %	24D
24 V AC, +6 %/-15 % (50/60 Hz) (with galvanic separation)	24A
115 V AC, +6 %/-15 % (50/60 Hz)	115
230 V AC, +6 %/ -15 % (50/60 Hz)	230

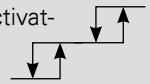
Contact points	**E**
2 relays with floating changeover contacts 230 V AC (50/ 60 Hz), 6 A	R
2 transistors with open collector U_{CE} ≤ 50 V; I_C ≤ 200 mA, floating	T

Order code	**A**		**B**		**C**		**D**		**E**
REG 21	–		–		–		–		–

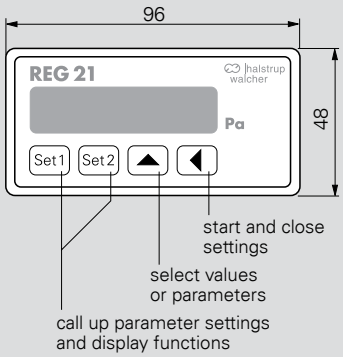
Can be pre-set on request:
Time constant, relay parameter, deactivation of the cyclic zeroing

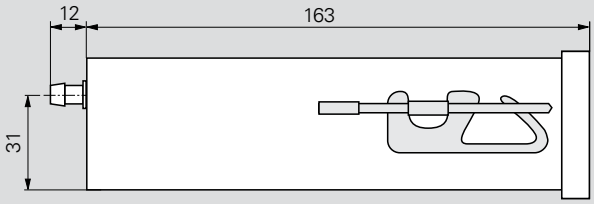
Features

- Pressure measurement and regulation in a device
- Accurate measurement of differential pressure with automatic zero-point calibration and high overload protection
- Switching outputs can be used as 2-point regulator (pressure switch), for activating/deactivating a final control element (e.g. pump), with relay hysteresis
- Switching outputs can be used as a 3-point regulator (e.g. ON 1 - OFF - ON 2) for activating/deactivating two final control elements, (e.g. air intake/outflow fans), with relay hysteresis
- Asymmetry also possible, e.g. -10 .. 40 mbar
- Housing: control panel housing (installed)



Panel housing / control panel installation





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