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Pressure and differential pressure transmitters

Type 4304

General application

Pressure and differential pressure transmitters Type 4304 are suitable for measuring over-pressure, vacuum and differential pressure of non-corrosive gases. Preferred areas of application are: HVAC, level measurement (bubbling-through method), flow measurement and monitoring, and filter technology. On request, the instrument can be supplied with LC display or with LC display and limit contact(s).



Technical data

Reference conditions

to DIN 16 086 and DIN IEC 770/5.3

Measuring ranges

see ordering details

Overload limit

ranges

0 — 400 mbar 5 x full scale

ranges

above 400 mbar 2 x full scale

Maximum system pressure

(for Δp measurements)

1 bar (on each side)

Bursting pressure

for all ranges > 2 bar

Parts in contact with medium

Ni, Al, CuBe, PU

Output

0 — 10 V burden $\geq 2 \text{ k}\Omega$

0/4 — 20 mA burden $\leq 500\Omega$

4 — 20 mA burden $\leq (U_B - 12 \text{ V}) / 0.02 \text{ A}$

2-wire

Burden error

$\leq 0.2\%$

Zero offset

$\leq 0.5\%$ of full scale

Ambient temperature error

within range +10 to +50°C

(compensated temperature range)

zero: $\leq 0.02\%/^\circ\text{C}$ typical,

$\leq 0.05\%/^\circ\text{C}$ max.

span: $\leq 0.02\%/^\circ\text{C}$ typical,

$\leq 0.05\%/^\circ\text{C}$ max.

Characteristic

standard: linear

on request: square root

Deviation from characteristic

$\leq 1\%$ of full scale

(limit point adjustment, incl. hysteresis and repeatability)

Response time

$\leq 20 \text{ msec}$

Stability per year

$\leq 0.5\%$ of full scale

Supply

see ordering details

Ripple

max. $1 V_{pp}$

Max. current drawn

approx. 25 mA

Supply voltage error

$\leq 0.02\%$ per V

(with rated supply voltage 24 V DC)

Permissible ambient temperature

-10 to +50°C

Storage temperature

-10 to +70°C

Permissible temperature of medium

-10 to +50°C

Electromagnetic compatibility

to basic standards EN 50 081-1 and

EN 50 082-1

Mechanical shock

10 g/0.1 msec

Mechanical vibration

5 g max. at 15 — 2000 Hz

Protection

IP65 to EN 60 529

(connecting cable dia.

5 mm min., 7 mm max.)

Case

ABS

Process connection

see ordering details

Electrical connection

cable gland M12 x 1.9;

internal screw terminals,

for conductor cross-sections up to

1.5 mm²

Limit contact

- contact rating: 6 A, 230 VAC

- adjustability: 0 — 100% of full scale

- differential: adjustable, 1 — 99% of set limit

- output per limit contact: 1 relay changeover contact (floating)

Nominal position

standard: vertical \perp

on request: horizontal





please specify when ordering

Weight

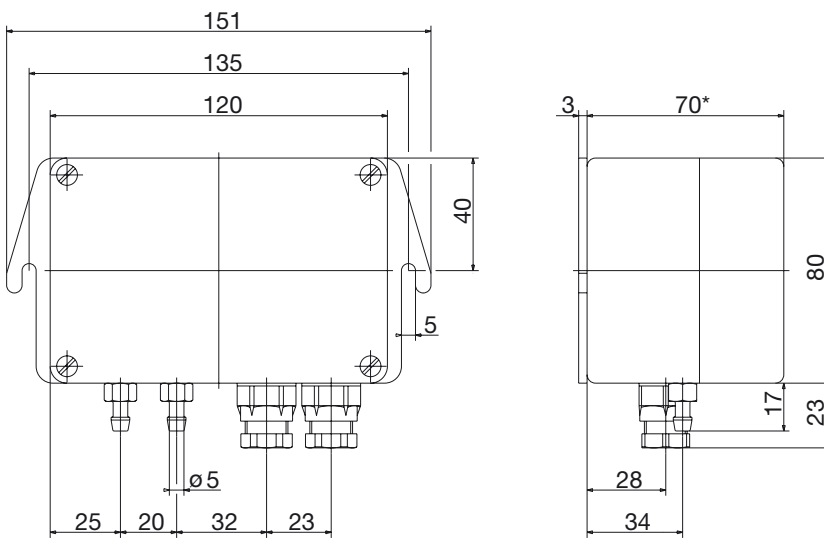
300g approx.

(400g approx. with AC supply)

Electrical connection

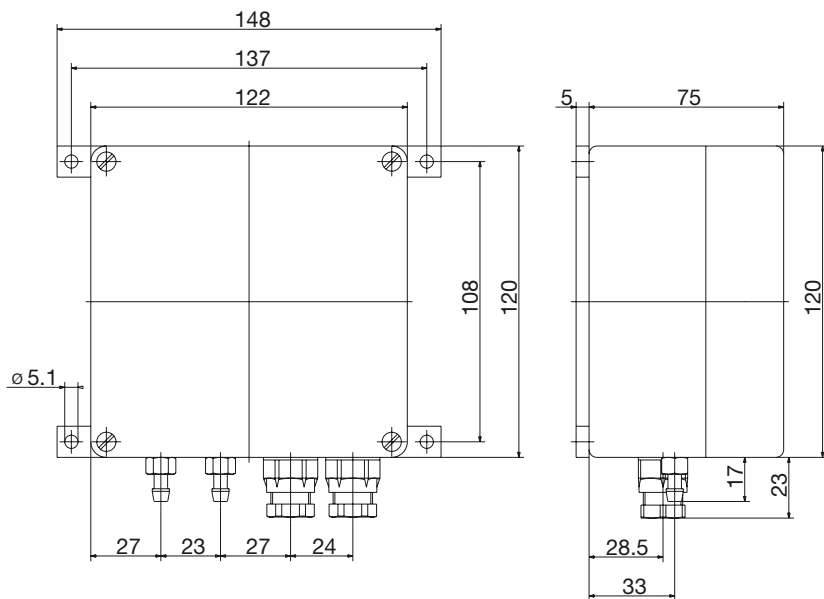
Connection	Terminals Terminal block		
DC supply 11.5 – 30 V, 19 – 31V		L - L +	1 2
AC supply 230 V, 115 V, 24 V		N L 1	1 2
Output 0 – 10 V, 0/4 – 20 mA, 3-wire		- +	3 4
Output 4 – 20 mA, 2-wire 12 – 32 VDC proportional current in supply line		- +	1 2

Dimensions



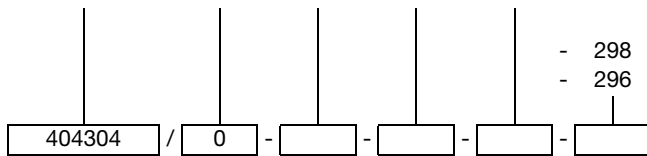
* 80 for basic type extensions "011", "012", "014", "015" and square root

Dimensions for ranges ≤ 40 Pa (with automatic zeroing)



Ordering details

404304	Basic type	Pressure transmitter with inductive measuring system
	Basic type extensions	
/ 000	none	
/ 011	with one limit contact ^{1, 4}	
/ 012	with two limit contacts ^{1, 4}	
/ 013	LCD display 3 1/2-digit	
/ 014	with one limit contact and LCD display 3 1/2-digit ^{1, 4}	
/ 015	with two limit contacts and LCD display 3 1/2-digit ^{1, 4}	
	Nominal input range (overpressure, vacuum, differential pressure)	
- 396	0	10 Pa ^{1/3}
- 397	0	20 Pa ^{1/3}
- 398	0	30 Pa ^{1/3}
- 399	0	40 Pa ^{1/3}
- 400	0	0.5 mbar
- 401	0	0.6 mbar
- 402	0	1 mbar
- 403	0	1.6 mbar
- 404	0	2.5 mbar
- 405	0	4 mbar
- 406	0	5 mbar
- 407	0	6 mbar
- 408	0	10 mbar
- 409	0	16 mbar
- 410	0	25 mbar
- 411	0	40 mbar
- 412	0	50 mbar
- 413	0	60 mbar
- 414	0	100 mbar
- 415	0	160 mbar
- 420	950	1050 mbar, abs. ²
- 421	900	1100 mbar, abs. ²
- 422	800	1200 mbar, abs. ²
- 423	800	1000 mbar, abs. ²
- 451	0	0.25 bar
- 452	0	0.4 bar
- 453	0	0.6 bar
- 454	0	1.0 bar
- 488	0	1.0 bar, abs.
- 999	special measuring range	
	Output	
- 402	0–20 mA	
- 403	0–20 mA, square root	
- 405	4–20 mA 2-wire	
- 406	4–20 mA	
- 407	4–20 mA, square root	
- 415	0–10 V	
- 416	0–10 V, square root	
- 451	0–20 mA	extended response time
- 452	0–20 mA, square root	extended response time
- 453	4–20 mA 2-wire	extended response time
- 454	4–20 mA	extended response time
- 455	4–20 mA, square root	extended response time
- 456	0–10 V	extended response time
- 457	0–10 V, square root	extended response time
	Supply	
- 02	230 V -10% to +6% AC, 50–60 Hz	
- 05	115 V -10% to +6% AC, 50–60 Hz	
- 08	24 V -10% to +6% AC, 50–60 Hz	
- 27	11.5–30 V DC (with 4–20 mA 2-wire output)	
- 28	19–31 V DC	

**Process connection**

- 298
- 296

6.6 x 11 mm dia. (for flexible hoses 6 mm dia.)
screwed pipe connection 8 mm

Ordering code

- 1 not with 2-wire output (405 or 453)
not with supply voltage 27.
- 2 for barometric pressure measurement (if applicable, state site altitude a.m.s.l.)
- 3 with housing 122 x 120 x 75 mm and automatic zeroing
not with 2-wire output (405 or 453)
- 4 not in conjunction with output "square root"