

# 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  
 above 400 mbar 2 x full scale

**Maximum system pressure**  
 (for  $\Delta p$  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 mm<sup>2</sup>

## 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

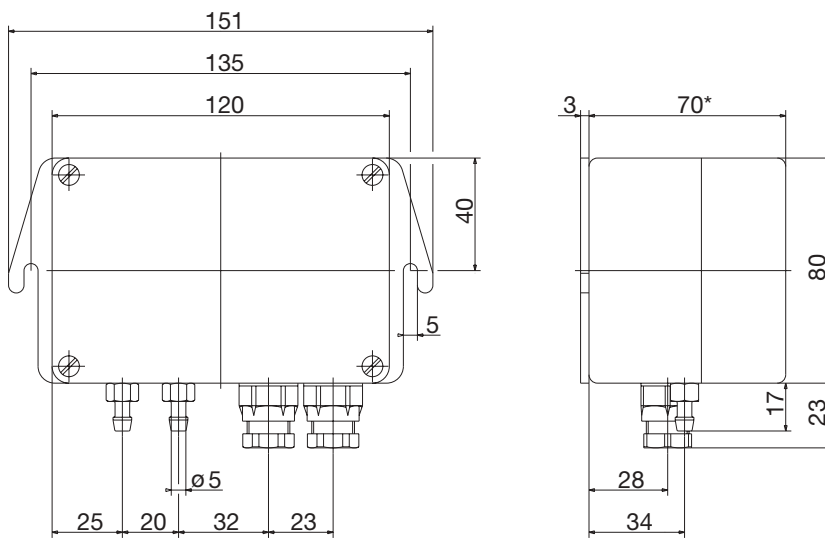
## Weight

300g approx.  
 (400g approx. with AC supply)

## Electrical connection

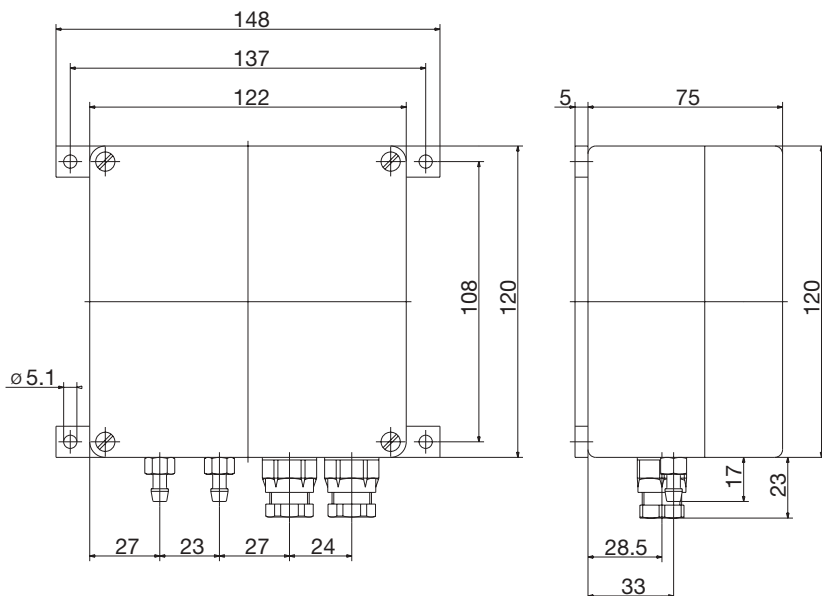
Connection			Terminals Terminal block
DC supply 11.5 – 30 V, 19 – 31V		L -	1
		L +	2
AC supply 230 V, 115 V, 24 V		N	1
		L 1	2
Output 0 – 10 V, 0/4 – 20 mA, 3-wire		-	3
		+	4
Output 4 – 20 mA, 2-wire 12 – 32 VDC proportional current in supply line		-	1
		+	2

## Dimensions



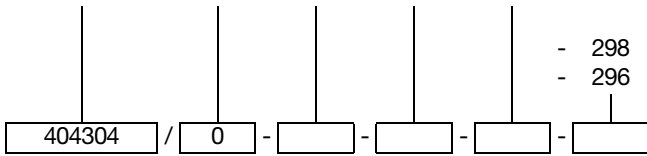
\* 80 for basic type extensions "011", "012", "014", "015" and square root

### Dimensions for ranges $\leq 40$ Pa (with automatic zeroing)



## Ordering details

404304	<b>Basic type</b> Pressure transmitter with inductive measuring system
	<b>Basic type extensions</b>
/ 000	none
/ 011	with one limit contact <sup>1</sup>
/ 012	with two limit contacts <sup>1</sup>
/ 013	LCD display 3 1/2-digit
/ 014	with one limit contact and LCD display 3 1/2-digit <sup>1</sup>
/ 015	with two limit contacts and LCD display 3 1/2-digit <sup>1</sup>
	<b>Nominal input range</b> (overpressure, vacuum, differential pressure)
- 396	0 10 Pa <sup>1/3</sup>
- 397	0 20 Pa <sup>1/3</sup>
- 398	0 30 Pa <sup>1/3</sup>
- 399	0 40 Pa <sup>1/3</sup>
- 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. <sup>2</sup>
- 421	900 1100 mbar, abs. <sup>2</sup>
- 422	800 1200 mbar, abs. <sup>2</sup>
- 423	800 1000 mbar, abs. <sup>2</sup>
- 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
	<b>Output</b>
- 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
	<b>Supply</b>
- 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 VDC (with 4–20 mA 2-wire output)
- 28	19–31 VDC



Process connection  
 - 298 6.6 x 11 mm dia. (for flexible hoses 6 mm dia.)  
 - 296 screwed pipe connection 8 mm

Ordering code

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- 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).