

# Pressure and differential pressure transmitters

## General application

Pressure and differential pressure transmitters Type 4304 are suitable for measuring overpressure, 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 16086 and DIN IEC 770/5.3

### Measuring ranges

see ordering details

### Overload limit

ranges 0 to 400 mbar

5× full scale

ranges above 400 mbar

2× 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 to 10 V      burden  $\geq 2 \text{ k}\Omega$

0/4 to 20 mA    burden  $\leq 500 \Omega$

4 to 20 mA,    burden  $\leq (U_B - 12 \text{ V}) \div 0.02 \text{ A}$

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:  $\leq 0.02 \%$ /°C typical,

$\leq 0.05 \%$ /°C max.

span:  $\leq 0.02 \%$ /°C typical,

$\leq 0.05 \%$ /°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 DC 24 V)

### 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 50081-1 and

EN 50082-1

### Mechanical shock

10 g/0.1 msec

### Mechanical vibration

5 g max. at 15 to 2000 Hz

### Protection

IP65 to EN 60529

(connecting cable dia. 5 mm min.,

7 mm max.)

### Case

ABS

### Process connection

see ordering details

### Electrical connection

cable gland M12  $\times$  1.5;

internal screw terminals,

for conductor cross-sections up to 1.5 mm<sup>2</sup>

### Limit contact

- contact rating: 6 A, AC 230 V

- adjustability: 0 to 100 % of full scale

- differential: adjustable,

1 to 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

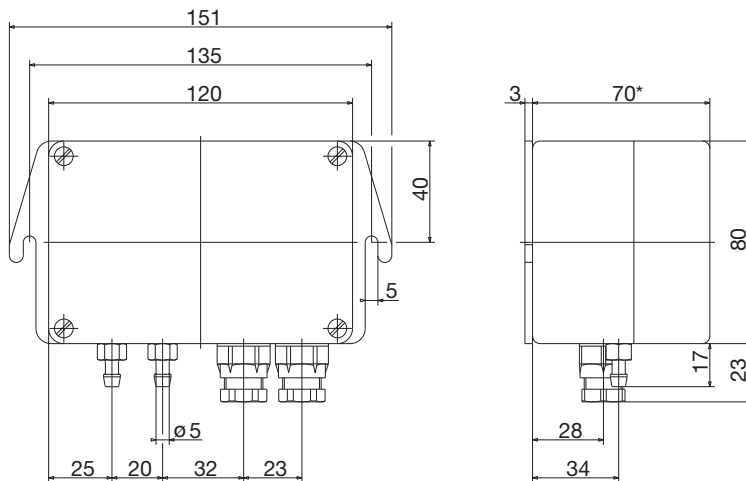
300 g approx.

(400 g approx. with AC supply)

## Electrical connection

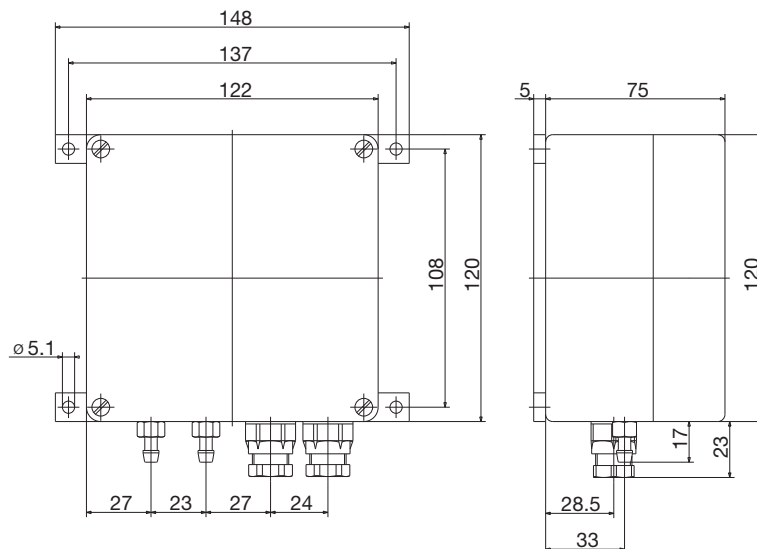
Connection		Terminals	Terminal block
Voltage supply DC 19 to 31 V		L - L +	1 2
Voltage supply AC 230 V or AC 115 V or AC 24 V		N L 1	1 2
Output 0 to 10 V, 0/4 to 20 mA, 3-wire		- +	3 4
Output 4 to 20 mA, 2-wire proportional current in voltage supply		- +	1 2

## Dimensions



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

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



**Ordering details**

	<b>(1) Basic type</b>
404304	Pressure and differential pressure transmitters
	<b>(2) Basic type extensions</b>
000	None
011	With one limit contact <sup>a, b</sup>
012	With two limit contacts <sup>a, b</sup>
013	LCD display 3 1/2-digit
014	With one limit contact and LCD display 3 1/2-digit <sup>a, b</sup>
015	With two limit contacts and LCD display 3 1/2-digit <sup>a, b</sup>
	<b>(3) Nominal input range (overpressure, vacuum, differential pressure)</b>
396	0 to 10 Pa <sup>a/c</sup>
397	0 to 20 Pa <sup>a/c</sup>
398	0 to 30 Pa <sup>a/c</sup>
399	0 to 40 Pa <sup>a/c</sup>
400	0 to 0,5 mbar
401	0 to 0,6 mbar
402	0 to 1 mbar
403	0 to 1,6 mbar
404	0 to 2,5 mbar
405	0 to 4 mbar
406	0 to 5 mbar
407	0 to 6 mbar
408	0 to 10 mbar
409	0 to 16 mbar
410	0 to 25 mbar
411	0 to 40 mbar
412	0 to 50 mbar
413	0 to 60 mbar
414	0 to 100 mbar
415	0 to 160 mbar
420	950 to 1050 mbar, abs. <sup>d</sup>
421	900 to 1100 mbar, abs. <sup>d</sup>
422	800 to 1200 mbar, abs. <sup>d</sup>
423	800 to 1000 mbar, abs. <sup>d</sup>
451	0 to 0,25 bar
452	0 to 0,4 bar
453	0 to 0,6 bar
454	0 to 1,0 bar
488	0 to 1,0 bar, abs.
999	special measuring range
	<b>(4) Output</b>
402	0 to 20 mA
403	0 to 20 mA, square root
405	4 to 20 mA, 2-wire
406	4 to 20 mA
407	4 to 20 mA, square root
415	0 to 10 V
416	0 to 10 V, square root
451	0 to 20 mA, extended response time
452	0 to 20 mA, square root, extended response time

453	4 to 20 mA, 2-wire, extended response time
454	4 to 20 mA, extended response time
455	4 to 20 mA, square root, extended response time
456	0 to 10 V, extended response time
457	0 to 10 V, square root, extended response time
<b>(5) Voltage supply</b>	
02	AC 230 V, -10 to +6 %, 50 to 60 Hz
05	AC 115 V, -10 to +6 %, 50 to 60 Hz
08	AC 24 V, -10 to +6 %, 50 to 60 Hz
27	DC 12 to 32 V (with 4 to 20 mA, 2-wire output) <sup>e</sup>
28	DC 19 to 31 V
<b>(6) Process connection</b>	
296	Screwed pipe connection 8 mm
298	6.6 mm × 11 mm dia. (for flexible hoses 6 mm dia.)
<b>(7) Extra codes</b>	
000	None

- <sup>a</sup> Not with output 405 or 453; not with voltage supply 27.
- <sup>b</sup> Not in conjunction with output 403, 407, 416, 452, 455 or 457
- <sup>c</sup> With housing 122 mm × 120 mm × 75 mm and automatic zeroing; not with output 405 or 453.
- <sup>d</sup> For barometric pressure measurement (if applicable, state site altitude a.m.s.).
- <sup>e</sup> Only in conjunction with output 405 or 453.

	(1)	/	(2)	-	(3)	-	(4)	-	(5)	-	(6)	/	(7)
<b>Order code</b>													
<b>Order example</b>	404304	/	000	-	414	-	405	-	27	-	298	/	000