

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 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 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: $\leq 0.02 \%/^{\circ}\text{C}$ 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 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 mm²

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

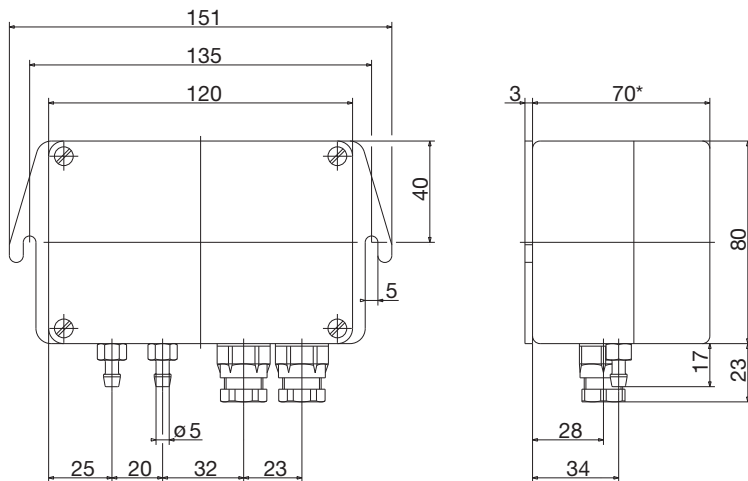
Weight

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

Electrical connection

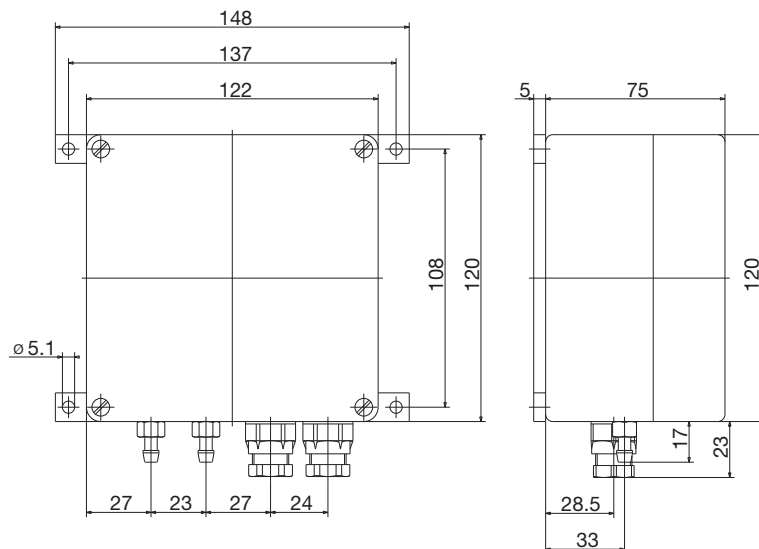
Connection		Terminals	Terminal block
Voltage supply DC 19 to 31 V		L - L +	1 2
Voltage supply AC 230 V or AC 115 V or AC 24 V		N L 1	1 2
Output 0 to 10 V, 0/4 to 20 mA, 3-wire		- +	3 4
Output 4 to 20 mA, 2-wire proportional current in voltage supply		- +	1 2

Dimensions



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

Dimensions for ranges ≤ 40 Pa (with automatic zeroing)



Ordering details

	(1) Basic type
404304	Pressure and differential pressure transmitters
	(2) Basic type extensions
000	None
011	With one limit contact ^{a, b}
012	With two limit contacts ^{a, b}
013	LCD display 3 1/2-digit
014	With one limit contact and LCD display 3 1/2-digit ^{a, b}
015	With two limit contacts and LCD display 3 1/2-digit ^{a, b}
	(3) Nominal input range (overpressure, vacuum, differential pressure)
396	0 to 10 Pa ^{a/c}
397	0 to 20 Pa ^{a/c}
398	0 to 30 Pa ^{a/c}
399	0 to 40 Pa ^{a/c}
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. ^d
421	900 to 1100 mbar, abs. ^d
422	800 to 1200 mbar, abs. ^d
423	800 to 1000 mbar, abs. ^d
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
	(4) Output
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
(5) Voltage supply	
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) ^e
28	DC 19 to 31 V
(6) Process connection	
296	Screwed pipe connection 8 mm
298	6.6 mm × 11 mm dia. (for flexible hoses 6 mm dia.)
(7) Extra codes	
000	None

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

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