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**JUMO Instrument Co. Ltd.**  
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**JUMO Process Control, Inc.**  
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# 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 x 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)

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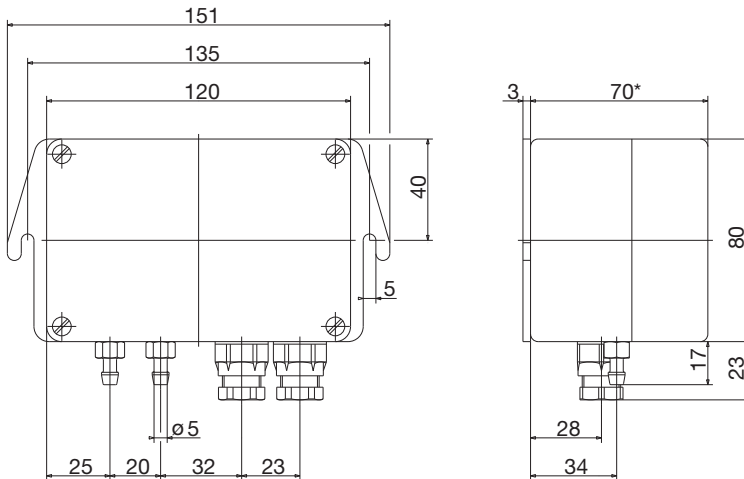
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## Electrical connection

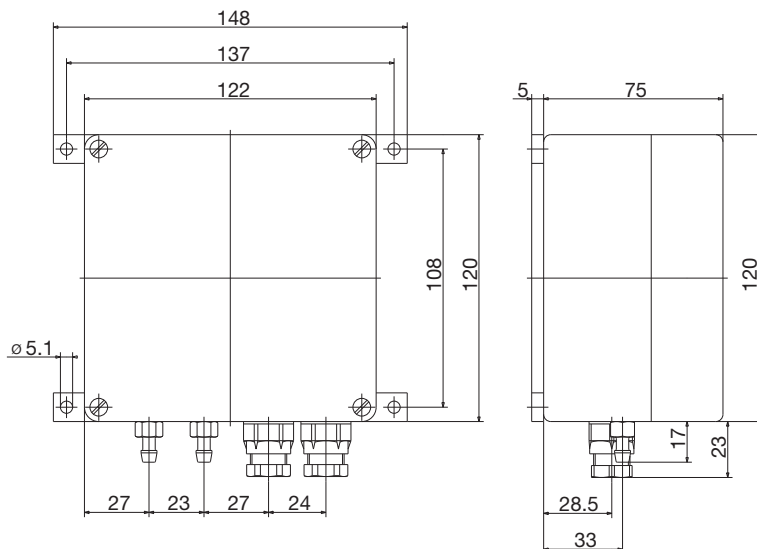
Connection		Terminals	Terminal block
Voltage supply DC 19 to 31 V		L - L +	1 2
Voltage supply AC 230 V or AC 115 V or AC 24 V		N L 1	1 2
Output 0 to 10 V, 0/4 to 20 mA, 3-wire		- +	3 4
Output 4 to 20 mA, 2-wire proportional current in voltage supply		- +	1 2

## Dimensions



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

### Dimensions for ranges ≤ 40 Pa (with automatic zeroing)



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**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

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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.l.).

<sup>e</sup> Only in conjunction with output 405 or 453.

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