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**JUMO Instrument Co. Ltd.**  
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**JUMO Process Control, Inc.**  
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# Pressure transmitter

## JUMO MIDAS

### Type 401001

#### Brief description

Pressure transmitters are used for measuring the relative (gauge) pressure in liquids and gases. The pressure transmitter incorporates a thick-film strain gauge as a measuring device. The pressure sensor has an aluminium-oxide ( $Al_2O_3$ ) ceramic base material. The pressure is converted into an electrical signal.

#### Technical data

##### Reference conditions

to DIN 16 086 and IEC 770/5.3

##### Ranges

see order details

##### Overload limits

for ranges

0 — 40 bar 3 x full scale

ranges

0 — 60 to 0 — 100 bar 2 x full scale

##### Bursting pressure

ranges 0 — 40 bar  $\leq 5$  x full scale

ranges

0 — 60 to 0 — 100 bar 3 x full scale

##### Parts in contact with medium

standard: st. steel, Mat. Ref. 1.4305,  
 ( $Al_2O_3$ ) 96%

seal: FPM or FFPM  
 or CR

##### Output

4 — 20 mA

2-wire burden  $\leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$

0.5 — 4.5 V burden  $\geq 20 \text{ k}\Omega$

1 — (5)6 V burden  $\geq 10 \text{ k}\Omega$

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

##### Burden error

$< 0.5\%$  max.

##### Zero offset

$\leq 0.3\%$  of full scale

##### Thermal hysteresis

$\leq \pm 0.8\%$  of full scale

##### Ambient temperature error

within range -20 to +85°C

(compensated temperature range)

zero:  $\leq 0.02\%/^{\circ}\text{C}$  typical,  
 $\leq 0.04\%/^{\circ}\text{C}$  max.

span:  $\leq 0.02\%/^{\circ}\text{C}$  typical,  
 $\leq 0.04\%/^{\circ}\text{C}$  max.

##### Deviation from characteristic

$\leq 0.5\%$  of full scale

(limit point adjustment)

##### Hysteresis

$\leq 0.2\%$  of full scale

##### Repeatability

$\leq 0.1\%$  of full scale

##### Response time

$\leq 3$  msec max.

##### Stability per year

$\leq 1\%$  of full scale

##### Supply

10 — 30 V DC (for output 4 — 20 mA  
 and 1 — (5)6 V)

5 V DC (for output 0.5 — 4.5 V)

11.5 — 30 V DC (for output 0 — 10 V)

Ripple: the voltage spikes must not go  
 above or below the values specified for the  
 supply

max. current drawn: approx. 25 mA

##### Supply voltage error

$\leq 0.02\%$  per V

(nominal supply voltage 24 V DC)

ratiometric with supply 5 V DC ( $\pm 0.5$  V)

##### Permissible ambient temperature

for version with plug:

-20 to +125°C

for version with attached cable:

-20 to +100°C

##### Storage temperature

-40 to +125°C

for version with attached cable

-20 to +100°C

##### Permissible temperature of medium

-30 to +125°C

##### Electromagnetic compatibility (EMC)

to EN 61 326

##### Mechanical shock

(to IEC 68-2-27)

100 g/1 msec

##### Mechanical vibration

(to IEC 68-2-6)

20 g max. at 15 — 2000 Hz



Type 401001/000-xxx-xxx-xx-xxx-61



Type 401001/000-xxx-xxx-xx-xxx-36

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**Protection**

with terminal box  
IP65 to EN 60 529  
(diameter of connecting cable  
5 mm min., 7 mm max. )  
with connecting cable or  
circular connector M 12 x 1  
IP67 to EN 60 529

**Housing**

stainless steel, Mat. Ref. 1.4305  
EPDM

**Pressure connection**

see order details;  
other connections on request

**Electrical connection**

see order details  
terminal box to DIN 43 650, style A,  
conductor cross-section up to 1.5 mm<sup>2</sup>  
or  
attached 4-core PVC cable, length 2 m,  
other lengths on request  
or  
4-pole circular connector, M12x1

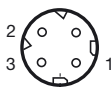
**Nominal position**

any

**Weight**

100 g

**Electrical connection**

| Connection                               |                                            |                                                                                     | Terminals                                   |                     |                                                                                      |                                                                                       |
|------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------|---------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                          |                                            |                                                                                     |                                             |                     |  |  |
|                                          |                                            |                                                                                     | Terminal box<br>61                          | Cable<br>11         | M12x1<br>36                                                                          | Bayonet<br>53                                                                         |
| Supply                                   | (with output)                              |  | 1 L+<br>2 L-                                | white +<br>brown -  | 1+<br>2-                                                                             | 1+<br>2-                                                                              |
| 10 — 30 V DC<br>11.5 — 30 V DC<br>5 V DC | (1 — (5)6 V<br>(0 — 10 V)<br>(0.5 — 4.5 V) |                                                                                     |                                             |                     |                                                                                      |                                                                                       |
| Output                                   |                                            |  | 2 -<br>3 +                                  | brown -<br>yellow + | 2-<br>3+                                                                             | 2-<br>3+                                                                              |
| 1 — (5)6 V<br>0 — 10 V<br>0.5 — 4.5 V    |                                            |                                                                                     |                                             |                     |                                                                                      |                                                                                       |
| Supply                                   | (with output)                              |  | 1 L+<br>2 L-                                | white +<br>brown -  | 1+<br>3-                                                                             | 1+<br>3-                                                                              |
| 10 — 30 V DC                             | (4 — 20 mA,<br>2-wire)                     |                                                                                     |                                             |                     |                                                                                      |                                                                                       |
| Output 4 — 20 mA, 2-wire                 |                                            |  | 1 +<br>2 -                                  | white<br>brown      | 1+<br>3-                                                                             | 1+<br>3-                                                                              |
|                                          |                                            |                                                                                     | proportional current 4 — 20 mA<br>in supply |                     |                                                                                      |                                                                                       |

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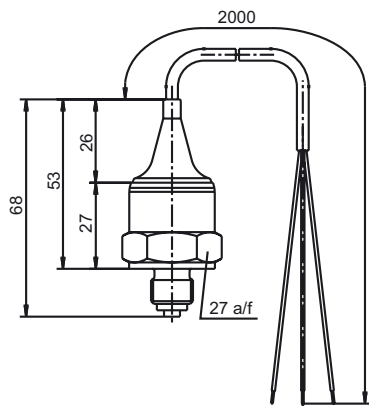
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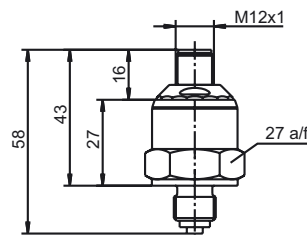


## Dimensions

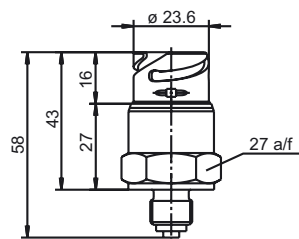
### Electrical connections



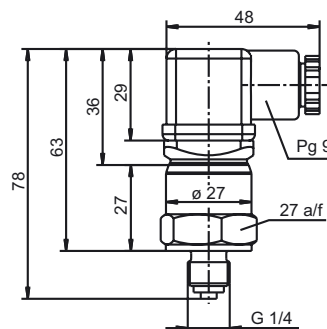
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36

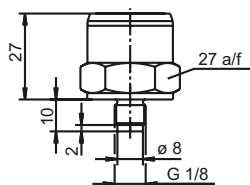


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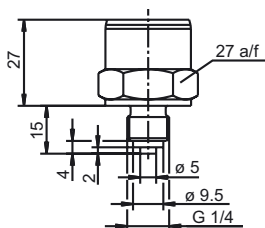


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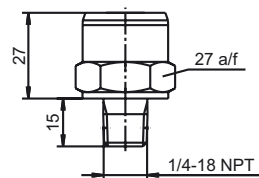
### Process connections



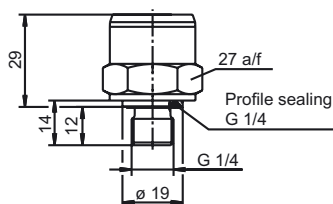
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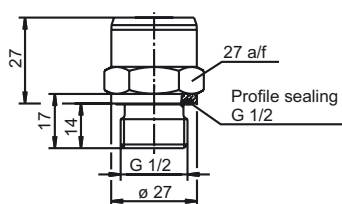
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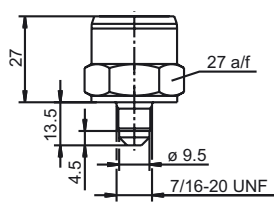
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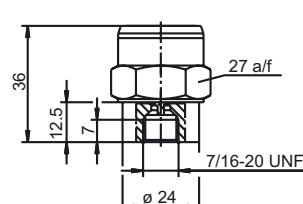
521



523



562



563

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**Order details****(1) Basic type**

401001 Pressure transmitter JUMO MIDAS

**(2) Basic type extensions**

000 none  
999 special version

**(3) Input**

455 0 ... 1,6 bar gauge pressure  
456 0 ... 2,5 bar gauge pressure  
457 0 ... 4 bar gauge pressure  
458 0 ... 6 bar gauge pressure  
459 0 ... 10 bar gauge pressure  
460 0 ... 16 bar gauge pressure  
461 0 ... 25 bar gauge pressure  
462 0 ... 40 bar gauge pressure  
463 0 ... 60 bar gauge pressure  
464 0 ... 100 bar gauge pressure  
479 -1 ... 0,6 bar gauge pressure  
480 -1 ... 1,5 bar gauge pressure  
481 -1 ... 3 bar gauge pressure  
482 -1 ... 5 bar gauge pressure  
483 -1 ... 9 bar gauge pressure  
484 -1 ... 15 bar gauge pressure  
485 -1 ... 24 bar gauge pressure  
999 Sondermessbereich

**(4) Output**

405 4 — 20 mA 2-wire  
412 0.5 — 4.5 V 3-wire  
415 0 — 10 V 3-wire  
418 1 — 5 V 3-wire  
420 1 — 6 V 3-wire

**(5) Process connection (not front-flush)**

501 G 1/8 to EN 837  
502 G 1/4 to EN 837  
511 1/4-18 NPT to EN 837  
521 G 1/4 to DIN 3852 T11  
523 G 1/2 to DIN 3852 T11  
562 7/16 UNF  
563 7/16 internal UNF, with valve seating

**(6) Material of process connection**

20 stainless steel  
46 brass (on request)

**(7) Material for seal**

601 FPM  
602 CR  
604 FFPM<sup>1</sup>  
999 special material

**(8) Electrical connection**

11 attached cable 2 m  
36 circular connector M 12 x 1  
61 terminal box

**(9) Extra Codes**

000 none  
591 throttle in pressure duct  
624 free from oil and grease

<sup>1</sup> Material properties are similar to PTFE.

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|                      | (1)                  | (2)                    | (3)                    | (4)                    | (5)                    | (6)                    | (7)                    | (8)                    | (9)                    |
|----------------------|----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| <b>Order code</b>    | <input type="text"/> | / <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | - <input type="text"/> | / <input type="text"/> |
| <b>Order example</b> | 401001               | / 000                  | - 459                  | - 405                  | - 523                  | - 20                   | - 601                  | - 11                   | / 000                  |

## Accessories

### Designation

4-pole straight socket M12x1 with 2 m PVC cable

4-pole angled socket M12x1, with 2m PVC cable

## Sales No.

40/00404585

40/00409334