

**JUMO GmbH & Co. KG**  
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**JUMO Instrument Co. Ltd.**  
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**JUMO Process Control, Inc.**  
 8 Technology Boulevard  
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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<sub>2</sub>O<sub>3</sub>) 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 ≤ 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<sub>2</sub>O<sub>3</sub>) 96%

seal: FPM or FFPM  
 or CR

##### Output

4 – 20 mA

2-wire burden ≤ (U<sub>B</sub>-10 V) / 0.02A

0.5 – 4.5 V burden ≥ 20 kΩ

1 – (5)6 V burden ≥ 10 kΩ

0 – 10 V burden ≥ 10 kΩ

##### Burden error

< 0.5% max.

##### Zero offset

≤ 0.3% of full scale

##### Thermal hysteresis

≤ ± 0.8% of full scale

##### Ambient temperature error

within range -20 to +85°C

(compensated temperature range)

zero: ≤ 0.02%/°C typical,  
 ≤ 0.04%/°C max.

span: ≤ 0.02%/°C typical,  
 ≤ 0.04%/°C max.

##### Deviation from characteristic

≤ 0.5% of full scale

(limit point adjustment)

##### Hysteresis

≤ 0.2% of full scale

##### Repeatability

≤ 0.1% of full scale

##### Response time

≤ 3 msec max.

##### Stability per year

≤ 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

≤ 0.02% per V

(nominal supply voltage 24 V DC)

ratiometric with supply 5 V DC (±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 61	Cable 11	M12x1 36	Bayonet 53
Supply (with output) 10 – 30 V DC (1 – (5)6 V) 11.5 – 30 V DC (0 – 10 V) 5 V DC (0.5 – 4.5 V)		1 L+ 2 L-	white + brown -	1+ 2-	1+ 2-
Output 1 – (5)6 V 0 – 10 V 0.5 – 4.5 V		2 - 3 +	brown - yellow +	2- 3+	2- 3+
Supply (with output) 10 – 30 V DC (4 – 20 mA, 2-wire)		1 L+ 2 L-	white + brown -	1+ 3-	1+ 3-
Output 4 – 20 mA, 2-wire		1 + 2 -	white brown	1+ 3-	1+ 3-

proportional current 4 – 20 mA  
in supply

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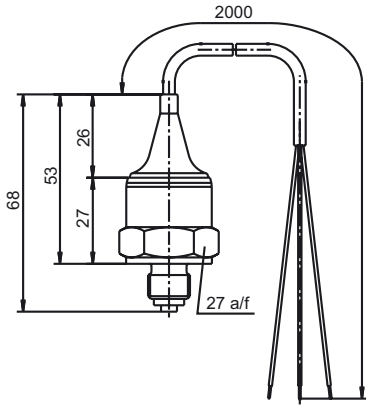
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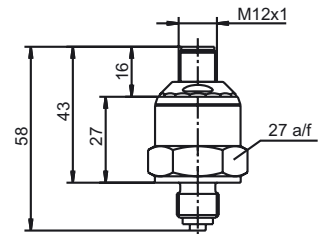


## Dimensions

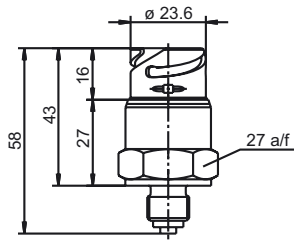
### Electrical connections



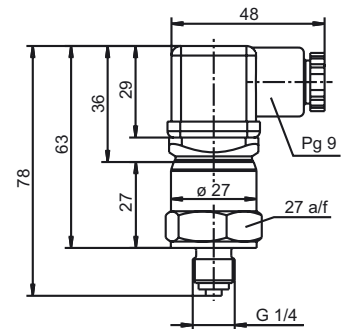
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36

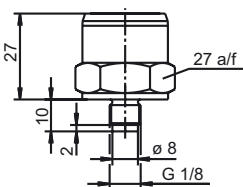


53

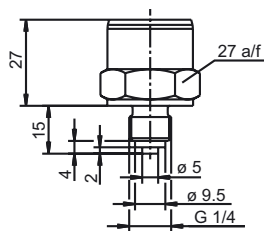


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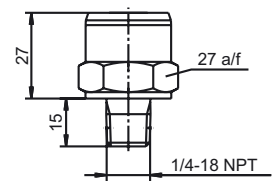
### Process connections



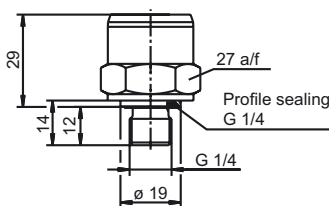
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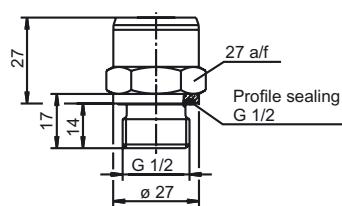
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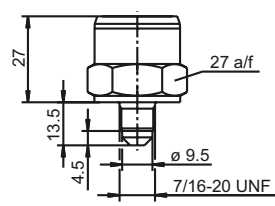
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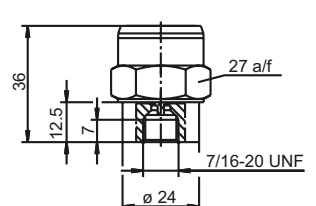
521



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"/>
<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