

JUMO AS

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Product data
sheet

JUMO MIDAS Pressure
Transmitter

Product data sheet

40.1001

Sales No.

43006710

Order code

401001/000-459-405-502-20-601-61



401001/000	model MIDAS; pressure transmitter
459	input 0...+10 bar g
405	output 4 to 20 mA 2-wire
502	process connection (not front flush) G 1/4 to DIN EN 837
20; 601	process connection material; seal material stainless steel; FPM
61	electrical connection with terminal box

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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 ≤ 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

≤ 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 ($\pm 0.5 \text{ V}$)

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 mm²
or
attached 4-core PVC cable, length 2 m,
other lengths on request
or
4-pole circular connector, M12x1

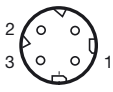
Nominal position

any

Weight

100 g

Electrical connection

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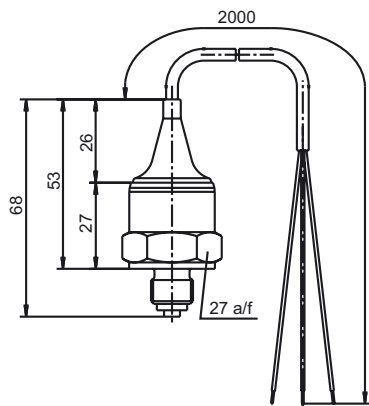
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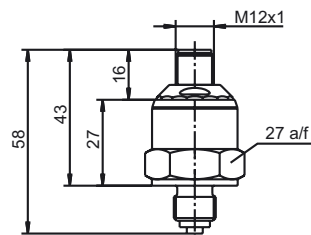


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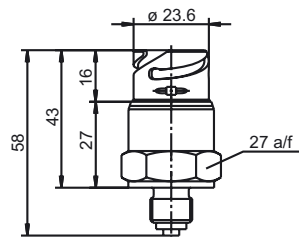
Electrical connections



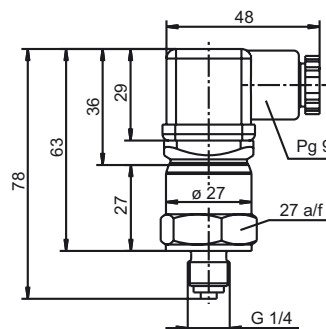
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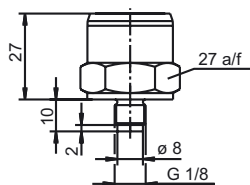


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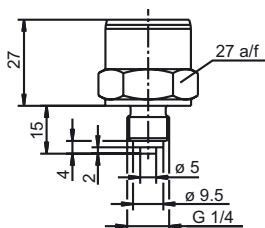


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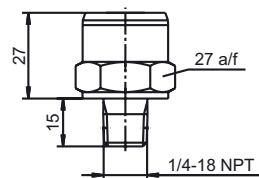
Process connections



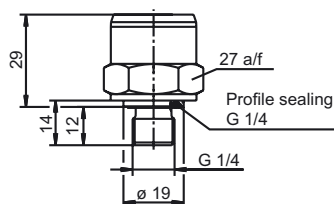
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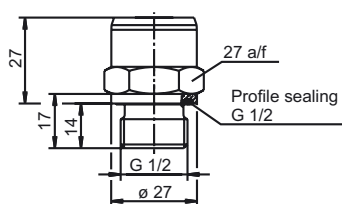
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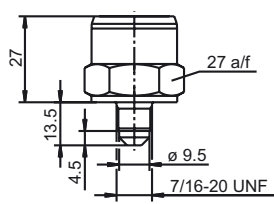
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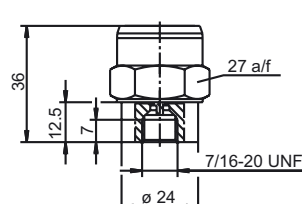
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523



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 FFPM¹
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

¹ Material properties are similar to PTFE.

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Order code		/	-	-	-	-	-	-	/
Order example	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

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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 ≤ 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

≤ 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 ($\pm 0.5 \text{ V}$)

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 mm²
or
attached 4-core PVC cable, length 2 m,
other lengths on request
or
4-pole circular connector, M12x1

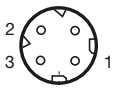
Nominal position

any

Weight

100 g

Electrical connection

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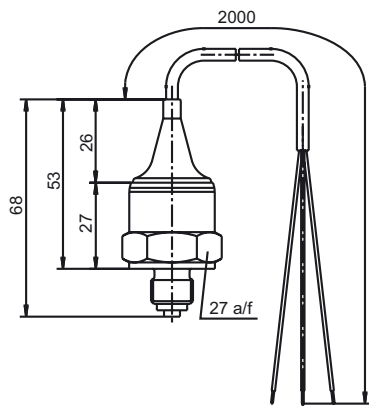
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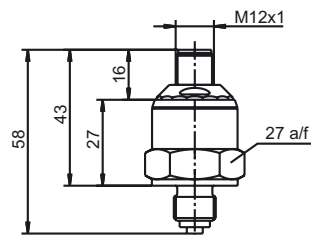


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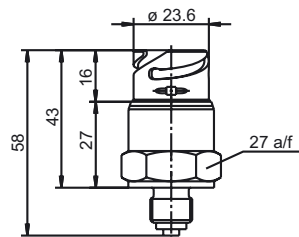
Electrical connections



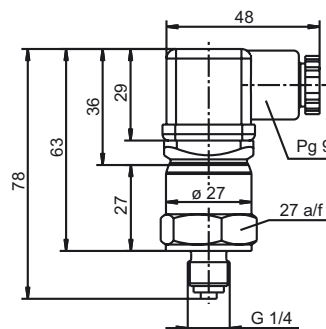
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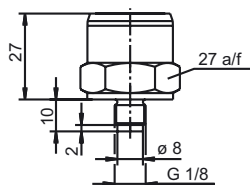


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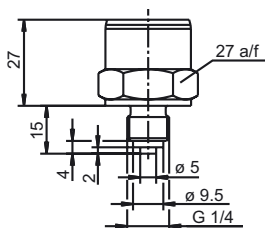


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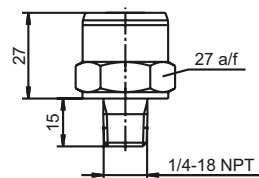
Process connections



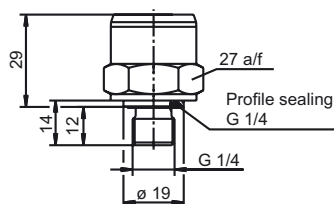
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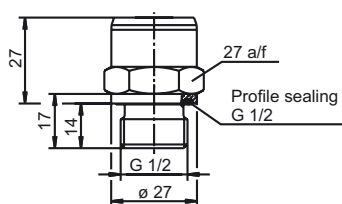
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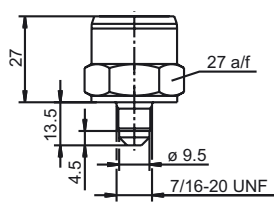
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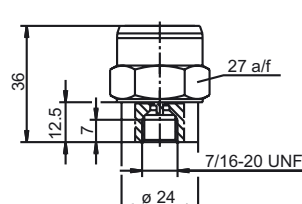
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523



562



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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 FFPM¹
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

¹ Material properties are similar to PTFE.

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	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Order code		/	-	-	-	-	-	-	/
Order example	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