

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 E-mail: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex CM20 2DY, UK
 Phone: +44 1279 635533
 Fax: +44 1279 635262
 E-mail: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 8 Technology Boulevard
 Canastota, NY 13032, USA
 Phone: 315-697-5866
 1-800-554-JUMO
 Fax: 315-697-5867
 E-mail: info@jumo.us
 Internet: www.jumo.us



Differential Pressure Transmitter

JUMO MIDAS DP10

Type 401050

Brief description

This differential pressure transmitter measures the pressure in liquid and gaseous media. The difference between the two pressures is converted into an analog output signal. The piezo-resistive silicon sensor is built into a stainless steel housing.

Technical data

Unless further specified, all the following percentage values refer to the measurement span.

Reference conditions

as per DIN 16 086 and EN 60 770

Measuring ranges

Meas. range	Max. system pressure ²	Max. overload on both sides ²	Max. single-sided overload		Bursting pressure	Overall error ³ (% of full scale)	Long-term stability (per annum)
			+ side	- side			
0 to +0.4 bar	5 bar	7.5 bar	7.5 bar	5 bar	≥ 60 bar	≤ 2.5% ⁴	≤ 0.6%
0 to +0.6 bar						≤ 2.5% ⁴	
0 to +1 bar						≤ 2.3% ⁴	
0 to +1.6 bar	10 bar	15 bar	15 bar	10 bar	≥ 60 bar	≤ 2.0% ⁴	≤ 0.6%
0 to +2.5 bar						≤ 2.0% ⁴	
0 to +4 bar	30 bar ¹	45 bar	15 bar	10 bar	≥ 60 bar	≤ 1.8% ⁴	≤ 0.4%
0 to +6 bar			25 bar			≤ 1.8% ⁴	
0 to +10 bar			30 bar			≤ 1.5% ⁴	
0 to +16 bar			30 bar			≤ 1.5% ⁴	

Parts in contact with medium⁵

stainless steel, Mat. Ref. 1.4571
 stainless steel, Mat. Ref. 1.4435
 stainless steel, Mat. Ref. 1.4305
 plastic, PBT GF30 or
 plastic, POM GF40
 seal: FPM

Output

4 — 20 mA 2-wire
 burden ≤ (U_B-10 V) / 0.02A
 0.5 — 4.5 V ratiometric
 burden ≥ 20 kΩ

Burden error

< 0.5%

Zero offset

≤ 0.3%

Thermal hysteresis

(within the compensated range -15 to +85°C)
 for meas. ranges ≤ 0.6 bar: ≤ ± 1%
 for meas. ranges > 0.6 bar: ≤ ± 0.5%

Step response

for current output ≤ 3 msec
 for voltage output ≤ 10 msec

Supply voltage

10 — 30 V DC (for 4 — 20 mA output)
 5 V DC ± 0.5 V (for 0.5 — 4.5 V output)
 Ripple: the voltage peaks must not go outside the limits specified for the supply.
 Max. current drawn: 25 mA

Supply voltage error

≤ 0.02% per V for 4 — 20 mA output

Nominal supply voltage

24 V DC
 ratiometric for 0.5 — 4.5 V output

Operating temperature

ambient: -20 to +80°C
 medium: -15 to +100°C⁶
 storage: -50 to +100°C

Electromagnetic compatibility (EMC)

as per EN 61 326
 interference emission: Class B
 interference immunity: to industrial requirements

¹ Maximum ambient temperature +60°C

² For simultaneous pressure on both + and - sides

³ The total error includes errors due to linearity, hysteresis, reproducibility and temperature drift over the range from -15 to +85°C.

⁴ of full scale

⁵ The customer must test the compatibility with the medium being measured.

⁶ If the medium is water at temperatures above 50°C, then pipes or hoses must be used to separate the transmitter from the process. E. g. for water at 85°C, at least 200 mm long (depending on the ambient temperature).

® Bayer Material Science



Type 401050/000-xxx-xxx-xx-xxx-61

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Mechanical shock

(to IEC 68-2-27)
 100 g/1msec

Mechanical vibration

(to IEC 68-2-6)
 ≤ 20 g for 15 — 2000 Hz

Enclosure protection

(to EN 60 529)
 with round connector M12 x 1: IP67
 with bayonet to DIN 72585: IP67
 with fixed cable: IP67

Process connection

2 x G1/8 internal thread
 adapters for pipes and hoses: see order details

Electrical connection

see order details

round connector M12 x 1
 or
 bayonet connector DIN 72585
 or
 fixed cable, 2 m (other lengths on request)

Operating position

unrestricted
 (deviations from the nominal operating position can cause an error of up to 2 mbar)

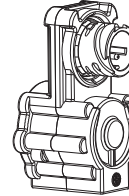
Weight

180 g
 (approx. 220 g with mounting bracket)

Fixing options

- 3 holes on housing bottom
- mounting bracket (accessory)
- on measurement lines (e.g. 6 x 1 pipe)

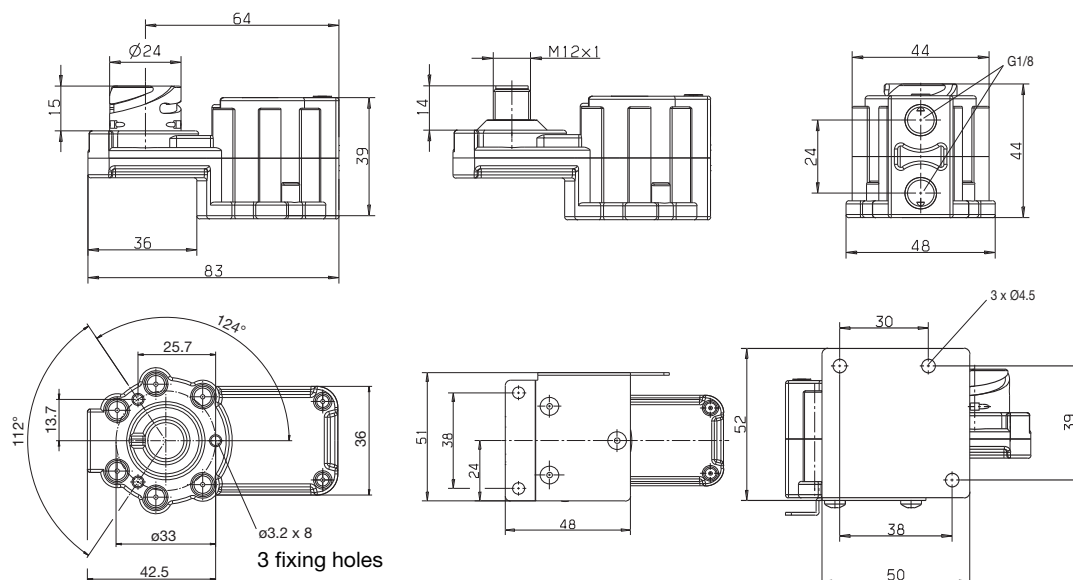
Nominal position



Electrical connection

		 Bayonet connector	 Round connector	Cable
Voltage output Supply voltage 11.5 — 30 V DC ±0.5 V (with output 0 to 10 V) 5 V DC ±0.5 V (with output 0.5 to 4.5 V)		1 L+ 2 L-		white L+ brown L-
Output 0 — 10 V 0.5 — 4.5 V		2 - 3 +		brown - black +
Current output Supply voltage 10 — 30 V DC			1 + 3 -	white L+ brown L-
Output 4 — 20 mA (2-wire)			1 + 3 -	white L+ brown L-

Dimensions



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Order details

401050	(1) Basic type	Differential pressure transmitter JUMO MIDAS DP 10
	(2) Basic type extensions	
/000		none
/999		special version
	(3) Input for differential pressure	
452		0 — 0.4 bar
453		0 — 0.6 bar
454		0 — 1.0 bar
455		0 — 1.6 bar
456		0 — 2.5 bar
457		0 — 4 bar
458		0 — 6 bar
459		0 — 10 bar
460		0 — 16 bar
999		special measuring range
	(4) Output	
405		4 — 20 mA 2-wire
412		0.5 — 4.5 V 3-wire
415		0 — 10 V 3-wire
	(5) Process connection¹	
297		stainless steel tube, 6mm dia., stainless steel 1.4571
305		screwed pipe joint, 6mm dia., stainless steel 1.4571 / FPM
306		screwed pipe joint, 6mm dia., brass
593		2 x G 1/8 to EN 837
	(6) Housing material	
68		PBT
	(7) Seal material	
601		FPM
	(8) Electrical connection	
11		fixed cable, 2 m
36		round connector M 12 x 1
53		bayonet connector to DIN 72585
000	(9) Extra codes	none

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)
Order code									
Order example	401050	/ 000	- 454	- 405	- 593	- 68	- 601	- 36	/ 000

Accessories

Designation

4-pole straight connector M12 x 1 with 2m PVC cable
 4-pole angled connector M12x1 with 2m PVC cable
 Angled mounting bracket
 Straight mounting bracket
 Bayonet jack with 3m cable

Sales No.

40/00404585
 40/00409334
 40/00448193
 40/00490132
 40/00463392

¹ other process connections on request.