

**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 CM 20 2TT, 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 13031, USA  
 Phone: 315-697-JUMO  
 1-800-554-JUMO  
 Fax: 315-697-5867  
 e-mail: info@jumo.us  
 Internet: www.jumo.us



# 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 <sup>2</sup>	Max. overload on both sides <sup>2</sup>	Max. single-sided overload		Bursting pressure	Overall error <sup>3</sup> (% 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% <sup>4</sup>	≤0.6%
0 to +0.6 bar							
0 to +1 bar							
0 to +1.6 bar	10 bar	15 bar	15 bar	10 bar	≤60 bar	≤2.0% <sup>4</sup>	≤0.6%
0 to +2.5 bar							
0 to +4 bar	30 bar <sup>1</sup>	45 bar	10 bar	10 bar	≤60 bar	≤1.8% <sup>4</sup>	≤0.4%
0 to +6 bar			25 bar			≤1.8% <sup>4</sup>	
0 to +10 bar			30 bar			≤1.5% <sup>4</sup>	
0 to +16 bar			30 bar			≤1.5% <sup>4</sup>	



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

#### Parts in contact with medium

stainless steel, Mat. Ref. 1.4571  
 stainless steel, Mat. Ref. 1.4435  
 stainless steel, Mat. Ref. 1.4305  
 plastic, PBT GF30 (Pocan<sup>®</sup> B3235)<sup>5</sup>  
 seal: FPM<sup>5</sup>

#### Output

4 – 20 mA 2-wire  
 burden ≤ (U<sub>B</sub>-10 V) / 0.02A  
 0.5 – 4.5 V ratiometric  
 burden ≥ 20 kΩ

#### Burden error

< 0.5%

#### Zero signal deviation

≤0.3%

#### Thermal hysteresis

(within the compensated range -20 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  
 ratiometric for 0.5 – 4.5 V output

#### Operating temperature

ambient: -25 to +80°C  
 medium: -40 to +100°C<sup>6</sup>  
 storage: -50 to +100°C

#### Electromagnetic compatibility (EMC)

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

#### Mechanical shock

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

<sup>1</sup> Maximum ambient temperature +60°C

<sup>2</sup> For simultaneous pressure on both + and - sides

<sup>3</sup> The total error includes errors due to linearity, hysteresis, reproducibility and temperature drift over the range from -25 to +85°C.

<sup>4</sup> of full scale

<sup>5</sup> The customer must test the compatibility with the medium being measured.

<sup>6</sup> 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).

<sup>®</sup> Bayer Material Science

**Mechanical vibration**

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

**Enclosure protection**

(to EN 60529)  
 with round connector M12 x 1: IP67  
 with bayonet to DIN 72585: IP67

**Process connection**

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

**Electrical connection**

round connector M12 x 1  
 for 4 – 20 mA output signal  
 bayonet connector DIN 72585  
 for 0.5 – 4.5 V output signal

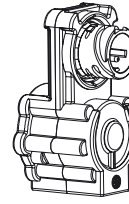
**Operating position**

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

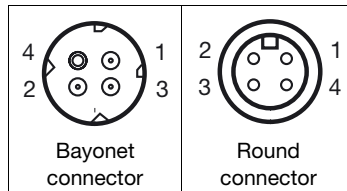
**Weight**

180 g  
 (approx. 220 g with mounting bracket)

**Nominal position**



**Electrical connection**

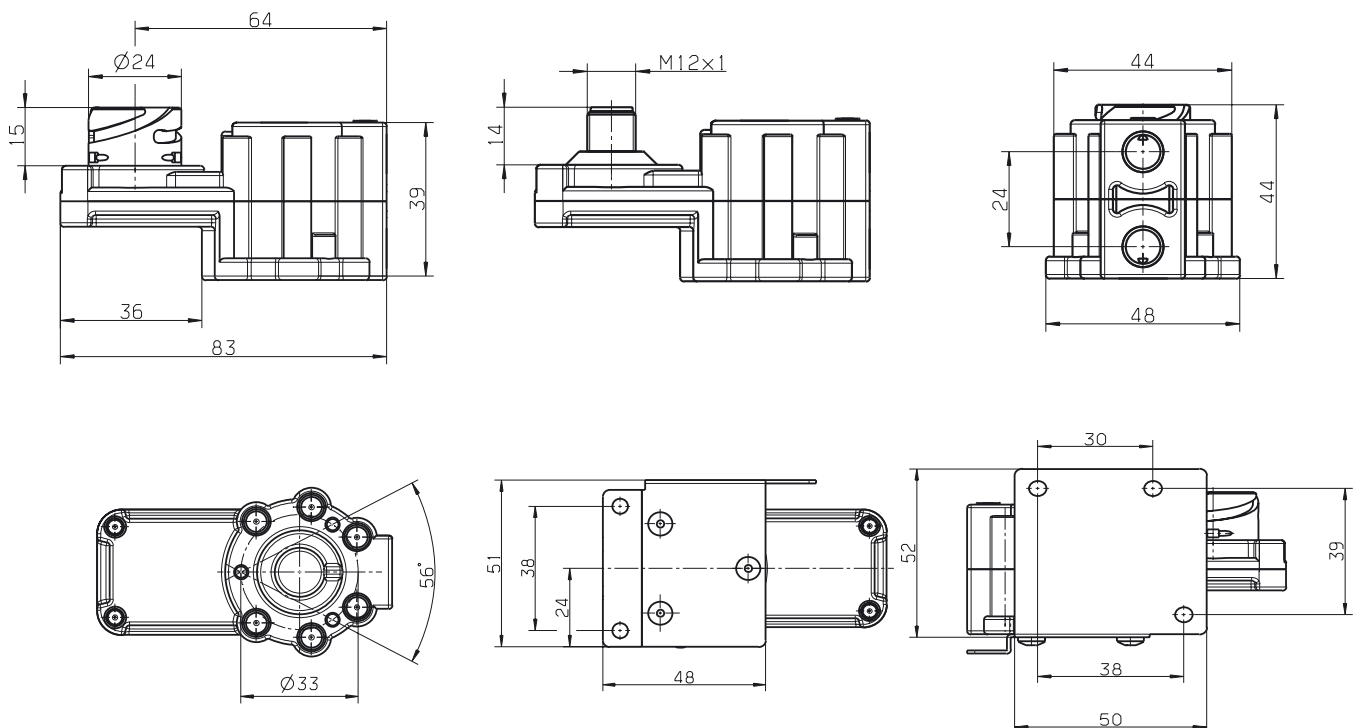


<b>Voltage output</b>			
Supply voltage 5 V DC ±0.5 V		1 L+ 2 L-	
Output 0.5 – 4.5 V		2 - 3 +	
<b>Current output</b>			
Supply voltage 10 – 30 V DC			1 + 3 -
Output 0 – 20 mA (2-wire)			1 + 3 -

**Accessories**

Screws for mounting the differential pressure transmitter

**Dimensions**



## Order details

401050	<b>(1) Basic type</b>	Differential pressure transmitter JUMO MIDAS DP 10
	<b>(2) Basic type extensions</b>	none
/000		none
/999		special version
	<b>(3) Input for gauge pressure</b>	
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
	<b>(4) Output</b>	
405		4 to 20 mA 2-wire
412		0.5 to 4.5 V 3-wire
	<b>(5) Process connection (not front-flush)</b>	
593		2 x G 1/8 to EN 837
xxx		6mm dia. hose connection
xxx		6mm screwed pipe connection
	<b>(6) Seal material</b>	
601		FPM
	<b>(7) Electrical connection</b>	
36		with round connector M 12 x 1 <sup>1</sup>
53		bayonet connector to DIN 72585 <sup>2</sup>
	<b>(8) Extra codes</b>	
000		none

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<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"/>
<b>Order example</b>	401050	/ 000	- 454	- 405	- 593	- 601	- 36	/ 000

## Accessories

### Designation

Mounting bracket  
 4-pole straight connector M12 x 1 with 2m PVC cable  
 4-pole angled connector M12x1 with 5m cable

### Sales No.

40/00448193  
 40/00404585  
 40/00409334

<sup>1</sup> only with output 405

<sup>2</sup> only with output 412