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JUMO Process Control, Inc.  
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## JUMO MIDAS S06 OEM-Pressure transmitter - Low pressure

### Applications

- HVAC (Heating, Ventilating and Air Conditioning)
- Filter technology
- Machine and system construction
- Measurement of liquid levels
- Bubbling-through method
- Packaging industry

### Brief description

The JUMO MIDAS S06 pressure transmitter is already available with measuring ranges from 100 mbar. The instrument features a silicon sensor that is able to handle extreme overload, even in the lowest measuring ranges, and is capable of millions of pressure cycles.

The high-quality stainless steel welded measuring system with no seals ensures the instrument can be used in almost all media, even under harsh conditions. The design offers optimum safety against process medium escaping.

### Customer benefits

#### • Economical

A high level of automation (digital compensation and calibration of the sensor assembly) reduces production time and manufacturing costs.

#### • Process safety

The piezoresistive silicon sensor is highly overload-resistant and long-term stable. The high quality of every pressure transmitter is ensured by the 100% final inspection within the fully automated measuring and calibration system.

#### • Time-saving, uncomplicated and versatile

There is little work involved in mounting the measuring instrument and electrical installation is simple. Universal, thanks to its modular configuration, it can be used in virtually every application.



Type 401011  
with terminal box



Type 401011  
with M12x1 connector

### Key features

- Measuring ranges from 100 mbar
- Suitable for measuring aggressive liquids
- High level of process safety thanks to a welded measuring system with no seals
- Sturdy and maintenance-free measurement technology with extreme overload resistance
- 60% faster device installation with the Quickon fast-connection system
- Parts in contact with media made of stainless steel

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## Technical data

### General

<b>Reference conditions</b>	DIN 16 086 and EN 60770
<b>Sensor</b>	
Material	silicon sensor with stainless steel separating diaphragm
Pressure transfer medium	synthetic oil
Permissible load change	> 10 million
<b>Location</b>	
Mounting location	any
Calibration location	device standing vertically, process connection on bottom
Location-dependent zero point offset	≤ 1,5 mbar, process connection on top

### Measuring range

<b>Relative pressure</b>	The measuring ranges start at 0 bar.						
Measuring range	100	160	250	400	600		mbar
Overload capacity	-0.4 to 0.4	-0.64 to 0.64	-1 to 1	-1 to 1.6	-1 to 2.4		bar
Bursting pressure	-0.6 to 0.6	-0.96 to 0.96	1.5	2	3.6		bar
<b>Relative pressure</b>							
Measuring range	-100 to 100	-400 to 400					mbar
Overload capacity	-0.4 to 0.4	-1 to 1.6					bar
Bursting pressure	600	2					bar

### Output

<b>Output signal<sup>a</sup></b>	
Current	
Output 405	4 to 20 mA, 2 wires
Voltage	
Output 412	0.5 to 4.5 V DC, 3 wires, ratiometric 10 to 90% of the supply voltage
Output 415	0 to 10 V DC, 3 wires
Output 418	1 to 5 V DC, 3 wires
Output 420	1 to 6 V DC, 3 wires
<b>Jump response</b>	
T <sub>90</sub>	≤ 5 ms
<b>Burden</b>	
Current	
4 to 20 mA, 2 wires	$R_L \leq (U_B - 8 \text{ V}) / 0.02 \text{ A} (\Omega)$
Voltage	
0.5 to 4.5 V DC, 3 wires	$R_L \geq 5 \text{ k}\Omega$
1 to 5 V DC, 3 wires	$R_L \geq 10 \text{ k}\Omega$
1 to 6 V DC, 3 wires	$R_L \geq 10 \text{ k}\Omega$
0 to 10 V DC, 3 wires	$R_L \geq 10 \text{ k}\Omega$

<sup>a</sup> Additional outputs are available on request.

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## Mechanical properties

<b>Process connection</b>	
Material	Stainless steel 304 <sup>a</sup>
<b>Membrane</b>	
Material	Stainless steel 316L
<b>Housing</b>	
Material	Stainless steel 304
<b>Electrical connection</b>	
Material	
Fixed cable,                      Electr. connection 11	PBT-GF30, PVC
Quickon,                            Electr. connection 23	PBT-GF30
M12x1 round plug,            Electr. connection 36	PBT-GF30, stainless steel 303
Bayonet connector,            Electr. connection 53	PBT-GF30
Terminal box,                      Electr. connection 61	PBT-GF30, PA, silicon
<b>Weight</b>	approx. 80 g with process connection 502 (G1/4)

<sup>a</sup> Pressure transmitters with process connection 521 come with an FPM seal.

## Ambient conditions

<b>Permissible temperatures</b>	<b>Measuring range</b>	<b>Measuring range</b>
Medium	<b>100, 160, 250, -100 to 100 mbar</b>	<b>≥ 400 mbar</b>
Environment	0 to +80 °C	-20 to +100 °C
Storage	0 to +80 °C	-20 to +100 °C
	-20 to +100 °C	-20 to +100 °C
<b>Permissible relative humidity</b>	100% rel. humidity, incl. condensation on the outer sleeve of the instrument	
In operation	90% relative humidity, no condensation	
Storage		
<b>Permissible mechanical loading</b>	20 g, 10 to 2000 Hz	
Vibration strength <sup>a</sup>	50 g for 11 ms	
Shock resistance <sup>b</sup>	100 g for 1 ms	
<b>Electromagnetic compatibility</b>	Class B	
Interference emission <sup>c</sup>	industrial requirements	
Interference immunity <sup>c</sup>		
<b>Enclosure protection<sup>d</sup></b>		
Fixed cable,                      Electr. connection 11	IP66	
Relative pressure ranges	IP67	
Absolute pressure ranges	IP66	
Quickon <sup>e</sup> ,                            Electr. connection 23	IP66	
M12x1 round plug,            Electr. connection 36	IP66	
Bayonet connector,            Electr. connection 53	IP67	
Terminal box <sup>f</sup> ,                      Electr. connection 61	IP65	

<sup>a</sup> IEC 60068-2-6

<sup>b</sup> IEC 60068-2-27

<sup>c</sup> EN 61326-2-3

<sup>d</sup> EN 60529

<sup>e</sup> Connecting cable diameter is min. 3.5 mm, max. 6 mm.

<sup>f</sup> Connecting cable diameter is min. 5 mm, max. 7 mm.

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## Accuracy

Relative pressure		Measuring ranges start at 0 bar.					
Measuring range		100	160	250	400	600	mbar
<b>Linearity<sup>a</sup></b>		<b>0.35</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	<b>0.3</b>	% of FS
Accuracy, 20°C <sup>b</sup>		1.2	0.8	0.8	0.7	0.7	% of FS
Accuracy, -20 to +100°C (80°C) <sup>c</sup>		2 <sup>e</sup>	1.9 <sup>e</sup>	1.8 <sup>e</sup>	1.7	1.6	% of FS
Relative pressure							
Measuring range		-100 to 100	-400 to 400				mbar
<b>Linearity<sup>a</sup></b>		<b>0.3</b>	<b>0.3</b>				% of FS
Accuracy, 20°C <sup>b</sup>		1	0.7				% of FS
Accuracy, -20 to +100°C (80°C) <sup>c</sup>		2 <sup>e</sup>	1.7				% of FS
<b>Long-term stability<sup>d</sup></b>		< 0.2% of FS					

<sup>a</sup> Linearity based on limit point setting

<sup>b</sup> Includes: linearity, hysteresis, repeatability, deviation from initial and full scale values of the measuring range

<sup>c</sup> Includes: linearity, hysteresis, repeatability, deviation from initial and full scale values of the measuring range, thermal effect on start of measuring range and span

<sup>d</sup> EN 61298-1

<sup>e</sup> max. permissible ambient and medium temperatures +80°C

## Auxiliary power

<b>Supply voltage U<sub>B</sub><sup>a</sup></b>			
4 to 20 mA, 2 wires, Output 405	8 to 30 V DC,	nominal supply voltage 24 V DC	
0.5 to 4.5 V DC, 3 wires, Output 412	3 to 5.25 V DC,	nominal supply voltage 5 V DC, ratiometric output	
		10 to 90% of supply voltage	
0 to 10 V DC, 3 wires, Output 415	11.5 to 30 V DC,	nominal supply voltage 24 V DC	
1 to 5 V DC, 3 wires, Output 418	8 to 30 V DC,	nominal supply voltage 24 V DC	
1 to 6 V DC, 3 wires, Output 420	8 to 30 V DC,	nominal supply voltage 24 V DC	
<b>Power consumption</b>	≤ 25 mA		
<b>Reverse polarity protection</b>	yes		
<b>Circuit</b>	SELV		

<sup>a</sup> Residual ripple: Peak voltages must **not** exceed or fall below the values specified for the supply voltage!

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## Connection diagram

Connection		Terminal assignment <sup>a</sup>				
		11 Fixed cable	23 Quickon	36 Round plug, M12x1	53 Bayonet	61 Terminal box
<b>4 to 20 mA, two wires, output 405</b>						
Supply voltage 8 to 30 V DC	UB/S+ 0 V/S-	white brown	1 3	1 3	1 2	1 2
<b>0.5 to 4.5 V DC, ratiometric, output 412</b>						
Supply voltage 3 to 5.25 V DC	UB	white	1	1	1	1
Ratiometric output 10 to 90% of supply voltage	0 V/S- S+	brown yellow	2 3	2 3	2 3	2 3
<b>0 to 10 V DC, 3 wires, output 415</b>						
Supply voltage 11.5 to 30 V DC	UB	white	1	1	1	1
	0 V/S- S+	brown yellow	2 3	2 3	2 3	2 3
<b>1 to 5 V DC, 3 wires, output 418</b> <b>1 to 6 V DC, 3 wires, output 420</b>						
Supply voltage 8 to 30 V DC	UB	white	1	1	1	1
	0 V/S- S+	brown yellow	2 3	2 3	2 3	2 3

<sup>a</sup> Illustration shows the pressure transmitter connector

<b>Color assignment: Round plug, M12x1</b>	1 bn Brown	4 bk Black	The color assignment <b>only</b> applies to A-coded standard cables !
	2 wh White	5 gy Gray	
	3 bu Blue		

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## Dimensions

### Electrical connection

11 Fixed cable	23 Quickon	36 M12 round plug	53 Bayonet connector	61 Terminal box

### Process connection

501 G1/8	502 G1/4	504 G1/2	511 1/4 - 18 NPT

521 G1/4	562 7/16-20 UNF	563 7/16 UNF inside

A = G1/4 profile seal

B = 7/16-20 UNF inside, with valve opener

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## Order details

### (1) Basic type

401011/000 JUMO MIDAS S06 pressure transmitter  
 401011/999 JUMO MIDAS S06 pressure transmitter, special design

### (2) Input

414 0 to 100 mbar relative pressure  
 415 0 to 160 mbar relative pressure  
 451 0 to 250 mbar relative pressure  
 452 0 to 400 mbar relative pressure  
 453 0 to 600 mbar relative pressure  
  
 446 -100 to 100 mbar relative pressure  
 447 -400 to 400 mbar relative pressure

999 Special measuring range for relative pressure

### (3) Output

405 4 to 20 mA, 2-w  
 412 0.5 to 4.5 V DC, 3-w  
 415 0 to 10 V DC, 3-w  
 418 1 to 5 V DC, 3-w  
 420 1 to 6 V DC, 3-w

### (4) Process connection

501 G1/8 EN 837  
 502 G1/4 EN 837  
 504 G1/2 EN 837  
 511 1/4-18 NPT DIN 837  
 521 G1/4 DIN 3852-11  
 562 7/16 - 20 UNF  
 563 7/16 - 20 UNF inside with valve opener

### (5) Process connection material

20 CrNi (stainless steel)

### (6) Electrical connection

11 With fixed cable<sup>a</sup>  
 23 Quickon  
 36 Round plug, M12x1  
 53 DIN 72585 bayonet instrument connector<sup>b</sup>  
 61 Terminal box EN 17501-803, Form A, ex DIN 43650

### (7) Extra codes

000 No extra code  
 591 Throttle in pressure channel  
 624 Free of oil and grease  
 630 Enlarged pressure channel<sup>c</sup>

### Notes on the order details

#### <sup>a</sup> Electrical connection 11

As standard: 2 m fixed cable

#### <sup>b</sup> Electrical connection 53

Bayonet connector DIN 72585-A1-3.1-Sn/K1

#### <sup>c</sup> Extra code 630

6 mm diameter for process connections 501  
 8 mm diameter for process connections 511 and 521

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(7)
Order code	<input type="text"/>	- <input type="text"/>	/ <input type="text"/>	, ...				
Order example	401011/000	- 454	- 405	- 504	- 20	- 61	/ 591	, 624

Minimum order quantity for production orders: 5 pieces

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## Accessories

Designation	Part No.
cable connector, straight, 4-pin, M12x1 with 2 m PVC cable	00404585
cable connector, angled, 4-pin, M12x1 with 2 m PVC cable	00409334