JUMO MIDAS S06
OEM-Pressure transmitter - Low pressure

Type 401011
with terminal box

Type 401011
with M12x1 connector

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.

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

Technical data

General

Reference conditions	DIN 16 086 and EN 60770
Sensor	
Material	silicon sensor with stainless steel separating diaphragm
Pressure transfer medium	synthetic oil
Permissible load change	> 10 million
Location	
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

Relative pressure	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
Relative pressure							
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

Output signal[a]	
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
Jump response	
T_{90}	≤ 5 ms
Burden	
Current	
4 to 20 mA, 2 wires	$R_L \leq (U_B - 8\ V) / 0.02\ A\ (\Omega)$
Voltage	
0.5 to 4.5 V DC, 3 wires	$R_L \geq 5\ k\Omega$
1 to 5 V DC, 3 wires	$R_L \geq 10\ k\Omega$
1 to 6 V DC, 3 wires	$R_L \geq 10\ k\Omega$
0 to 10 V DC, 3 wires	$R_L \geq 10\ k\Omega$

[a] Additional outputs are available on request.

Mechanical properties

Process connection		
Material		Stainless steel 304[a]
Membrane		
Material		Stainless steel 316L
Housing		
Material		Stainless steel 304
Electrical connection		
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
Weight		approx. 80 g with process connection 502 (G1/4)

[a] Pressure transmitters with process connection 521 come with an FPM seal.

Ambient conditions

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

[a] IEC 60068-2-6
[b] IEC 60068-2-27
[c] EN 61326-2-3
[d] EN 60529
[e] Connecting cable diameter is min. 3.5 mm, max. 6 mm.
[f] Connecting cable diameter is min. 5 mm, max. 7 mm.

Accuracy

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

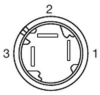
[a] Linearity based on limit point setting
[b] Includes: linearity, hysteresis, repeatability, deviation from initial and full scale values of the measuring range
[c] Includes: linearity, hysteresis, repeatability, deviation from initial and full scale values of the measuring range, thermal effect on start of measuring range and span
[d] EN 61298-1
[e] max. permissible ambient and medium temperatures +80°C

Auxiliary power

Supply voltage U_B [a]			
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
Power consumption			≤ 25 mA
Reverse polarity protection			yes
Circuit			SELV

[a] Residual ripple: Peak voltages must **not** exceed or fall below the values specified for the supply voltage!

Connection diagram

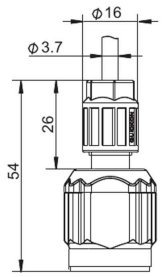
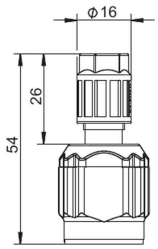
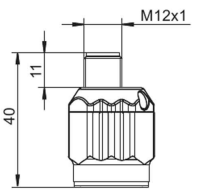
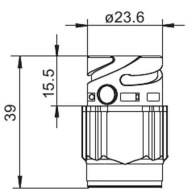
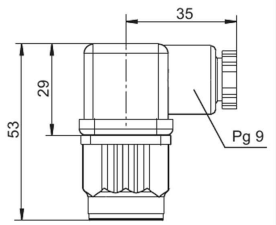
Connection		Terminal assignment [a]				
						
		11 Fixed cable	23 Quickon	36 Round plug, M12x1	53 Bayonet	61 Terminal box
4 to 20 mA, two wires, output 405						
Supply voltage 8 to 30 V DC	UB/S+ 0 V/S-	white brown	1 3	1 3	1 2	1 2
0.5 to 4.5 V DC, ,ratiometric, output 412						
Supply voltage 3 to 5.25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

[a] Illustration shows the pressure transmitter connector

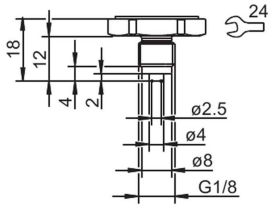
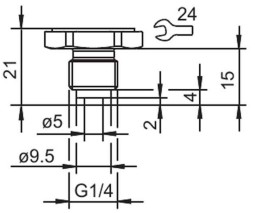
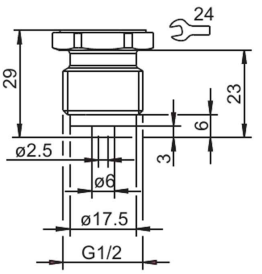
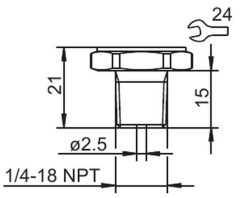
Color assignment: Round plug, M12x1	1 bn	Brown	4 bk	Black	The color assignment **only** applies to A-coded standard cables !
	2 wh	White	5 gy	Gray	
	3 bu	Blue			

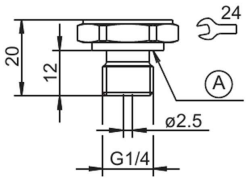
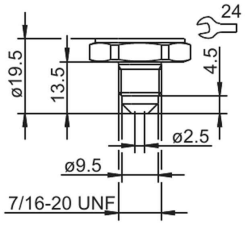
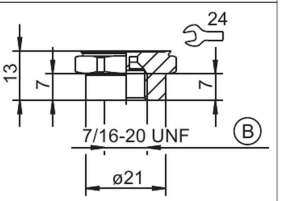
Dimensions

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

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[a]
23		Quickon
36		Round plug, M12x1
53		DIN 72585 bayonet instrument connector[b]
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[c]

Notes on the order details

[a] **Electrical connection 11**
As standard: 2 m fixed cable

[b] **Electrical connection 53**
Bayonet connector DIN 72585-A1-3.1-Sn/K1

[c] **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		-		-		-		-		-		/		,	...
Order example	401011/000	-	454	-	405	-	504	-	20	-	61	/	591	,	624

Minimum order quantity for production orders: 5 pieces

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