

JUMO MIDAS S06

OEM-Pressure Transmitter – Low Pressure

Applications

- HVAC (heating, ventilating, and air conditioning)
- Filter technology
- Mechanical and plant engineering
- Level measurement
- Bubble-through method
- Packaging industry

Brief description

The JUMO MIDAS S06 pressure transmitter is already available with measuring ranges as of 100 mbar. The used silicon sensor can handle extreme overloading even in the lowest measuring ranges and is capable of handling millions of pressure cycles.

The fully welded and therefore seal-free measuring system made of high-grade stainless steel allows this device to be used in almost all media, even when the conditions are rough.

The structure ensures optimum protection against process medium leakage.



Type 401011 with cable socket



Type 401011 with M12 × 1 connector

Customer benefits

- **Economic**
A high degree of automation (digital compensation and calibration of sensor module) reduces production time and manufacturing costs.
- **Process reliability**
The piezoresistive silicon sensor has a high level of overload protection and long-term stability. The full final inspection in the fully automated measuring and calibration facility ensures that each pressure transmitter is of high quality.
- **Time-saving, uncomplicated, and versatile**
The installation of the measuring device requires little work and the electrical installation is simple. The modular structure allows universal use in almost any application.

Special features

- Measuring ranges as of 100 mbar
- Suitable for measuring aggressive liquids
- High degree of process reliability due to a welded measuring system with no seals
- Robust and maintenance-free measurement technology thanks to extreme overload resistance
- 60 % quicker device installation with the QUICKON quick-clamp technology
- Parts in contact with media are made of stainless steel

Technical data

General Information

Reference conditions	DIN 16086 and DIN EN 60770
Sensor	
Material	Silicon sensor with stainless steel separating membrane (piezo-resistive)
Pressure transfer medium	Synthetic oil
Admissible load changes	> 10 million
Position	
Mounting position	Any
Calibration position	Device stands upright, process connection at the bottom
Zero point offset depending on position	≤ 1.5 mbar, process connection at the top

Output

Analog output ^a	
Current	
Output 405	4 to 20 mA, two-wire
Voltage	
Output 412	DC 0.5 to 4.5 V, three-wire, ratiometric 10 to 90 % of the voltage supply
Output 415	DC 0 to 10 V, three-wire
Output 418	DC 1 to 5 V, three-wire
Output 420	DC 1 to 6 V, three-wire
Step response	
T ₉₀	≤ 5 ms
Burden	
Current	$R_L \leq (U_B - 8 \text{ V}) \div 0.02 \text{ A } (\Omega)$
4 to 20 mA, two-wire	
Voltage	
DC 0.5 to 4.5 V, three-wire	$R_L \geq 5 \text{ k}\Omega$
DC 0 to 10 V, three-wire	$R_L \geq 10 \text{ k}\Omega$
DC 1 to 5 V, three-wire	$R_L \geq 10 \text{ k}\Omega$
DC 1 to 6 V, three-wire	$R_L \geq 10 \text{ k}\Omega$

^a Further outputs are available upon request.

Mechanical features

Process connection	
Material	Stainless steel 304 ^a
Push-in fitting (process connection 383)	Brass, nickel-plated
Membranes	
Material	Stainless steel 316 L
Case	
Material	Stainless steel 304
Electrical connection	
Material	
Attached cable (electrical connection 11)	PBT-GF30, PVC, PE
QUICKON (electrical connection 23)	PBT-GF30
Round plug M12 × 1 (electrical connection 36)	PBT-GF30, stainless steel 303
Bayonet connector (electrical connection 53)	PBT-GF30
Cable socket (electrical connection 61)	PBT-GF30, PA, silicone
Weight	80 g with process connection 502 (G 1/4)

^a Pressure transmitters with process connection 521 are supplied with an FPM seal. Note the medium durability of the seal material!

Environmental conditions

Admissible temperatures	Measuring range 100, 160, 250, - 100 to +100 mbar	Measuring range $\geq 0,4$ bar
Medium	0 to 80 °C	-20 to +100 °C
Ambient	0 to 80 °C	-20 to +100 °C
Storage	-20 to +100 °C	-20 to +100 °C
Admissible humidity	100 % rel. humidity including condensation on the device outer case	
Operation	90 % rel. humidity without condensation	
Storage		
Admissible mechanical load		
Vibration resistance ^a	20 g at 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 requirement	
Protection type ^d		
Attached cable (electrical connection 11)		
Relative pressure measuring range	IP66	
Absolute pressure measuring range	IP67	
QUICKON ^e (electrical connection 23)	IP66	
Round plug M12 × 1 ^f (electrical connection 36)	IP66	
Bayonet connector ^f (electrical connection 53)	IP67	
Cable socket ^{f, g} (electrical 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, minimum 3.5 mm, maximum 6 mm

^f The protection type is only achieved with a suitable mounted counter piece.

^g Connecting cable diameter, minimum 6 mm, maximum 8 mm

Measuring range and accuracy

Measuring range	Linearity ^a	Accuracy at		Long-term stability ^b	Overload capacity	Burst pressure
		20 °C ^c	-20 to +100 °C ^d (80 °C)			
mbar	% MSP ^e	% MSP	% MSP	% MSP per year	bar	bar
0 to 100 mbar relative pressure	0.35	1.2	2 ^f	< 1.0	-0.4 to +0.4	-0.6 to +0.6
0 to 160 mbar relative pressure	0.3	0.8	1.9 ^f		-0.7 to +0.7	-1 to +1
0 to 0,25 bar relative pressure	0.3	0.8	1.8 ^f		-1 to +1	-1 to +1.5
0 to 0,4 bar relative pressure	0.3	0.7	1.7	< 0.4	-1 to +1.6	-1 to +2
0 to 0,6 bar relative pressure	0.3	0.7	1.6		-1 to +2.4	-1 to +3.6
-100 to +100 mbar relative pressure	0.3	1	2 ^f		-0.4 to +0.4	-0.6 to +0.6
-400 to +400 mbar relative pressure	0.3	0.7	1.7		-1 to +1.6	-1 to +2

^a Linearity according to limit point setting

^b Reference conditions EN 61298-1

^c Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring range end value

^d Includes: linearity, hysteresis, repeatability, deviation of measuring range initial value and measuring range end value, thermal effect on measuring range start and measuring span

^e MSP = measuring span

^f Maximum admissible ambient and medium temperature 80 °C

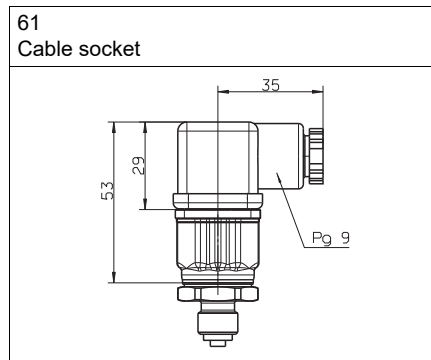
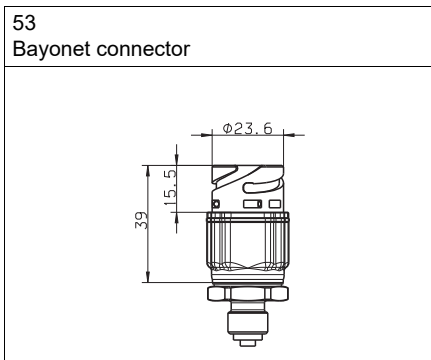
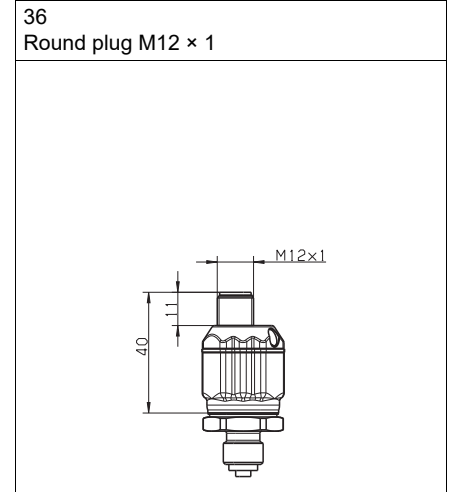
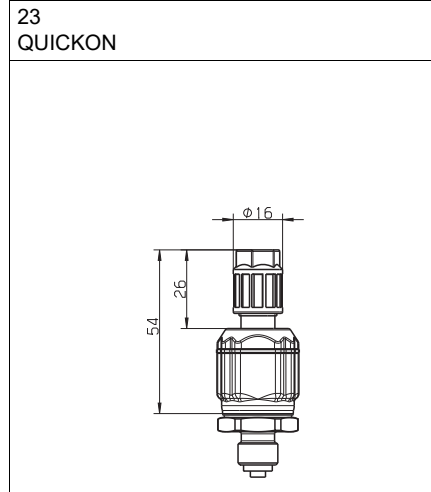
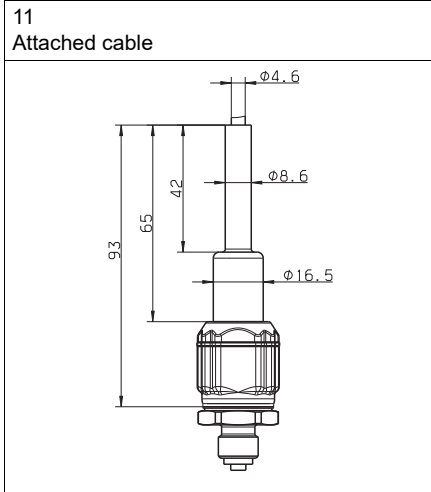
Auxiliary energy

Voltage supply U _B ^a 4 to 20 mA, two-wire (output 405) DC 0.5 to 4.5 V, three-wire (output 412) DC 0 to 10 V, three-wire (output 415) DC 1 to 5 V, three-wire (output 418) DC 1 to 6 V, three-wire (output 420)	DC 8 to 30 V, rated voltage supply DC 24 V DC 3 to 5.25 V, rated voltage supply DC 5 V, ratiometric output 10 to 90 % of the voltage supply DC 11.5 to 30 V, rated voltage supply DC 24 V DC 8 to 30 V, rated voltage supply DC 24 V DC 8 to 30 V, rated voltage supply DC 24 V
Current consumption 4 to 20 mA, two-wire (output 405) DC 0.5 to 4.5 V, three-wire (output 412) DC 0 to 10 V, three-wire (output 415) DC 1 to 5 V, three-wire (output 418) DC 1 to 6 V, three-wire (output 420)	≤ 25 mA ≤ 2 mA ≤ 3 mA ≤ 3 mA ≤ 3 mA
Reverse voltage protection	Yes
Electrical circuit Requirements	SELV The device must be equipped with an electrical circuit that meets the requirements of EN 61010-1 with regard to "Limited-energy circuits".

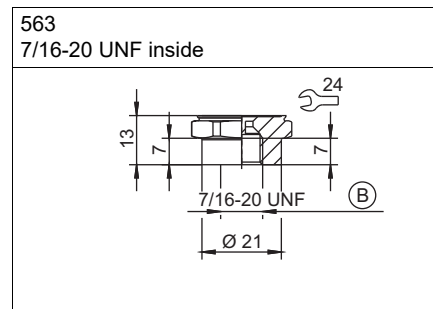
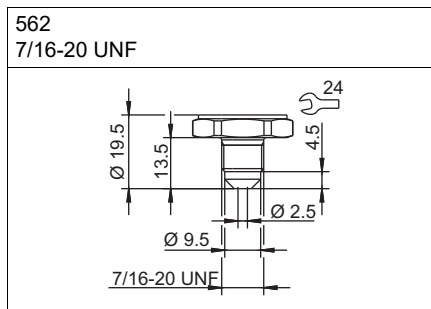
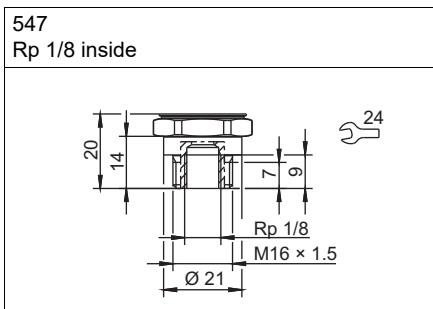
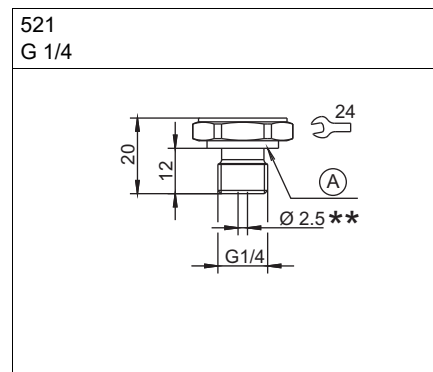
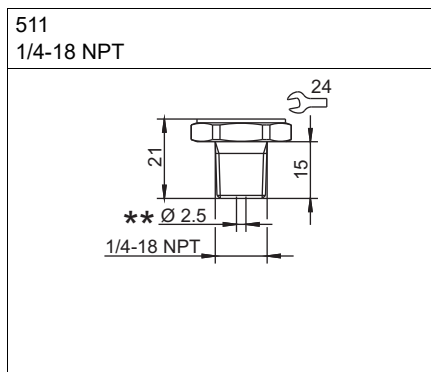
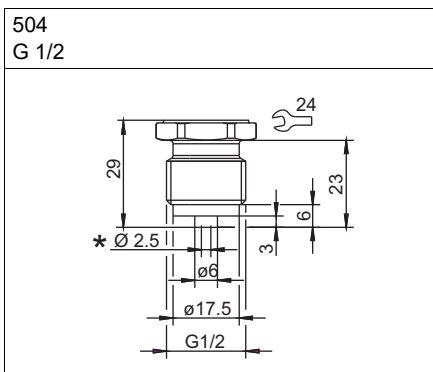
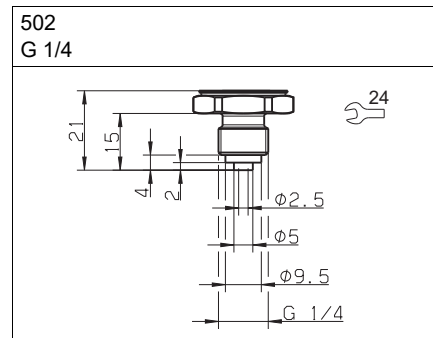
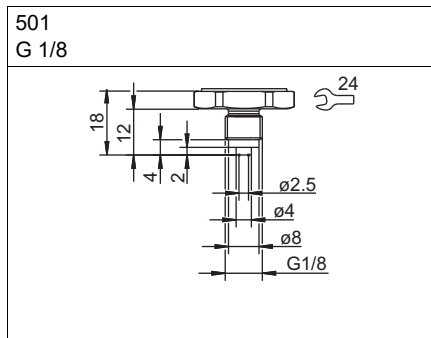
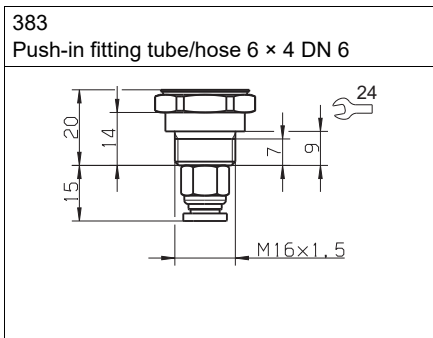
^a Residual ripple: the voltage peaks must not exceed or fall below the specified voltage supply values!

Dimensions

Electrical connection

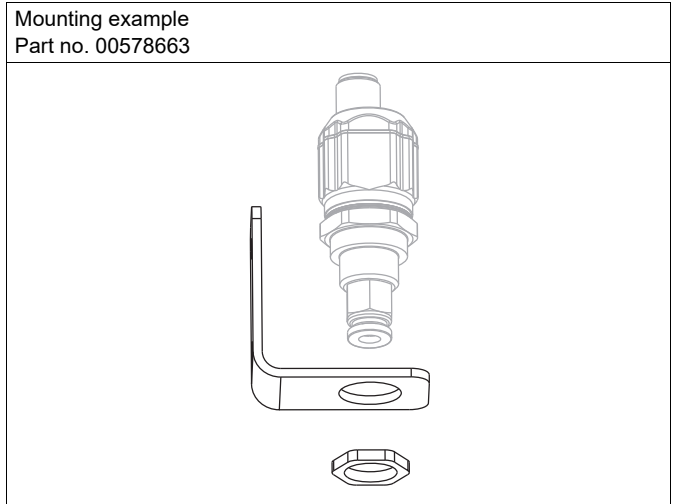
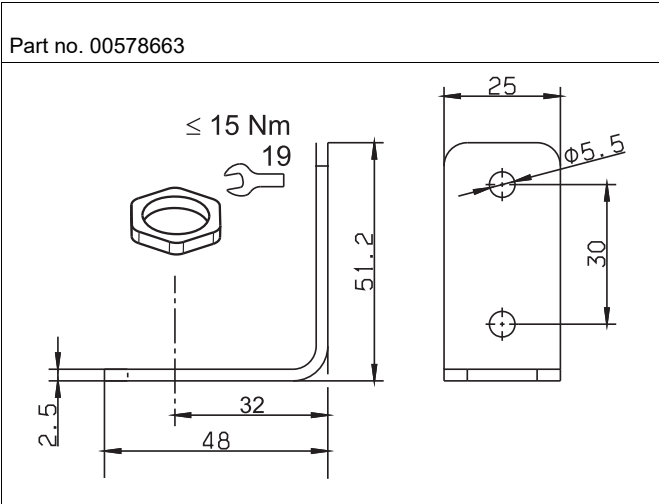


Process connection



- A Profile seal G 1/4
- B With valve core handle
- * With extra code 630 pressure channel Ø 12 mm
- ** With extra code 630 pressure channel Ø 8 mm

Accessories



Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection, only use the installation instructions or the operating manual. The knowledge and the correct technical compliance with the safety information and warnings contained in these documents are mandatory for mounting, electrical connection, and startup as well as for safety during operation.

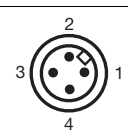
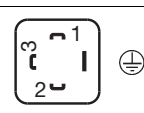


Connection		Terminal assignment ^a				
		11 Attached cable	23 QUICKON	36 Round plug M12 × 1	53 Bayonet connector	61 Cable socket
4 to 20 mA, two-wire (output 405)						
Voltage supply DC 8 to 30 V	U _B /S+	WH	1	1	1	1
	0 V/S-	BN	3	3	2	2
DC 0.5 to 4.5 V ratiometric (output 412)						
Voltage supply DC 3 to 5.25 V	U _B	WH	1	1	1	1
Ratiometric output 10 to 90 % of the voltage supply	0 V/S-	BN	2	2	2	2
	S+	GN	3	3	3	3
DC 0 to 10 V, three-wire (output 415)						
Voltage supply DC 11.5 to 30 V	U _B	WH	1	1	1	1
	0 V/S-	BN	2	2	2	2
	S+	GN	3	3	3	3
DC 1 to 5 V, three-wire (output 418)						
DC 1 to 6 V, three-wire (output 420)						
Voltage supply DC 8 to 30 V	U _B	WH	1	1	1	1
	0 V/S-	BN	2	2	2	2
	S+	GN	3	3	3	3
Functional bonding conductor FB ^b		-	-	4	-	

^a Figure: connection to the pressure transmitter

^b The pressure transmitter has to be connected to the potential equalization system of the plant through the electrical connection or process connection.

Assignment variants electrical connection, extra code 933

Please provide the assignment variant in plain text with the order details (for example "B1")!

Connection		Terminal assignment ^a			
					
		36 Round plug M12 × 1		61 Cable socket	
Assignment variants		B1	B2	B3	B4
4 to 20 mA, two-wire (output 405)					
Voltage supply DC 8 to 30 V	U _B /S+	1			2
	0 V/S-	2			1
DC 0 to 10 V, three-wire (output 415)					
Voltage supply DC 11.5 to 30 V	U _B	1	1	1	3
	0 V/S-	3	4	2	2
	S+	4	2	4	1
DC 1 to 5 V, three-wire (output 418)					
DC 1 to 6 V, three-wire (output 420)					
Voltage supply DC 8 to 30 V	U _B	1	1	1	3
	0 V/S-	3	4	2	2
	S+	4	2	4	1
Functional bonding conductor FB ^b		-	-	-	

^a Figure: connection to the pressure transmitter

^b The pressure transmitter has to be connected to the potential equalization system of the plant through the electrical connection or process connection.

Color coding: connecting cable round plug M12 × 1	
1 BN	Brown
2 WH	White
3 BU	Blue
4 BK	Black

The color coding is **only** valid for A-coded standard cables!

Order details

	(1) Basic type
401011	JUMO MIDAS S06 - OEM pressure transmitter for low pressure
	(2) Basic type extension
000	None
999	Special version
	(3) Input
414	0 to 100 mbar relative pressure
415	0 to 160 mbar relative pressure
446	-100 to +100 mbar relative pressure
447	-400 to +400 mbar relative pressure
451	0 to 0,25 bar relative pressure
452	0 to 0,4 bar relative pressure
453	0 to 0,6 bar relative pressure
999	Special measuring range for relative pressure
	(4) Output
405	4 to 20 mA, two-wire
412	DC 0.5 to 4.5 V, three-wire, ratiometric
415	DC 0 to 10 V, three-wire
418	DC 1 to 5 V, three-wire
420	DC 1 to 6 V, three-wire
999	Special version
	(5) Process connection
383	Push-in fitting for pipe/hose 6 × 4 DN 6
501	G 1/8 according to DIN EN 837
502	G 1/4 according to DIN EN 837
504	G 1/2 according to DIN EN 837
511	1/4-18 NPT according to DIN EN 837
521	G 1/4 according to DIN 3852-11
547	Rp 1/8 inside
562	7/16-20 UNF
563	7/16-20 UNF inside, with valve core handle
999	Special version
	(6) Process connection material
20	CrNi (stainless steel)
	(7) Electrical connection
11	Attached cable ^a
23	QUICKON
36	Round plug M12 × 1
53	Bayonet DN 72585-A1-3.1-Sn/K1
61	Cable socket DIN EN 175301-803, Form A, ex DIN 43650
99	Special version
	(8) Extra codes
000	None
591	Choke in the pressure channel
624	Oil and grease free
630	Enlarged pressure channel ^b
933	Assignment variant electrical connection

^a The standard cable length is 2 m. Further lengths are available upon request.

^b Diameter 8 mm with process connection 511 and 521, diameter 12 mm with process connection 504



Order code (1) (2) (3) (4) (5) (6) (7) (8)
 Order example 401011 / 000 - 454 - 405 - 504 - 20 - 61 / 591, ...^a

^a List extra codes in sequence, separated by commas.

Minimum order volume for manufacturing devices: 5 pieces

Minimum order volume for warehouse devices: 1 piece

Accessories

Item	Description	Part no.
Cable box, straight 	The PVC connecting cable is 2 m in length and has a 4-pin, straight M12 × 1 connector with gold-plated contacts on the device side.	00404585
Cable box, angled 	The PVC connecting cable is 2 m in length and has a 4-pin, angled M12 × 1 connector with gold-plated contacts on the device side.	00409334
Mounting set (bracket and fixing nut for process connection 547)		00578663