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JUMO Instrument Co. Ltd.
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JUMO Process Control, Inc.
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JUMO MIDAS S07 MA

OEM Pressure Transmitter - Maritime Approved

Applications

In the shipping and offshore sector:

- HVAC (heating, ventilating, and air conditioning)
- Refrigeration engineering
- Compressors
- Engines
- Separators
- Pumps

Brief description

The JUMO MIDAS S07 MA pressure transmitter is available with both relative and absolute pressure measuring ranges.

The fully welded measuring system (without seals) 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. The device features a silicon sensor that is extremely resistant to overloading even in the lowest measuring ranges and is capable of handling millions of pressure cycles.



Type 401021 with M12 connector



Type 401021 with cable socket

Customer benefits

- **Economic**
A high degree of automation (digital compensation and calibration of sensor module) reduces production time and manufacturing costs.
- **Process-reliable**
The piezoresistive silicon sensor has long-term stability and a high level of overload protection. 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

- Maritime approved
- 1 to 100 bar relative pressure, and also up to 25 bar absolute pressure
- 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
- Robust construction guarantees a long operating life
- Parts in contact with media are made of stainless steel

Approvals/approval marks



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Technical data

General Information

Reference conditions	DIN 16086 and DIN EN 60770
Sensor	
Material	Silicon sensor with stainless steel separating membrane
Pressure transfer medium	Synthetic oil
Admissible load changes	> 10 million
Position	
Mounting position	Any
Calibration position	Device upright, process connection at the bottom

Measuring range and accuracy

Measuring range bar	Linearity ^a % MSP ^f	Accuracy at		Long-term stability ^b % MSP per year	Overload capacity ^c bar	Burst pressure bar
		20 °C ^d % MSP	-20 C to +100 °C ^e % MSP			
0 bar to 1 bar relative/absolute pressure	0.3	0.6	1.5	≤ 0.2	4	6
0 bar to 1.6 bar relative/absolute pressure	0.25	0.5	1.4		6	10
0 bar to 2.5 bar relative/absolute pressure	0.25	0.5	1.3		10	15
0 bar to 4 bar relative/absolute pressure	0.25	0.5	1.2		16	24
0 bar to 6 bar relative/absolute pressure	0.25	0.5	1.2		24	36
0 bar to 10 bar relative/absolute pressure	0.25	0.5	1.0		40	60
0 bar to 16 bar relative/absolute pressure	0.2	0.5	1.0		60	100
0 bar to 25 bar relative/absolute pressure	0.2	0.5	1.0		100	150
0 bar to 40 bar relative pressure	0.2	0.5	1.0		100	150
0 bar to 60 bar relative pressure	0.2	0.5	1.0		180	250
0 bar to 100 bar relative pressure	0.2	0.5	1.0		180	250
-1 to 0 bar relative pressure	0.3	0.6	1.5		4	6
-1 bar to +0.6 bar relative pressure	0.3	0.6	1.5		6	10
-1 bar to +1.5 bar relative pressure	0.3	0.6	1.4		10	15
-1 bar to +3 bar relative pressure	0.3	0.5	1.3		16	24
-1 bar to +5 bar relative pressure	0.25	0.5	1.3		24	36
-1 bar to +9 bar relative pressure	0.25	0.5	1.2		40	60
-1 bar to +15 bar relative pressure	0.25	0.5	1.0		60	100
-1 bar to +24 bar relative pressure	0.2	0.5	1.0		100	150

^a Linearity according to limit point setting

^b Reference conditions EN 61298-1

^c All pressure transmitters are vacuum-proof.

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

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

^f MSP = measuring span

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Output

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

Mechanical features

Process connection	
Material	Stainless steel 304 ^a
Membrane	
Material	Stainless steel 316 L
Case	
Material	Stainless steel 304
Electrical connection	
Material	
Attached cable (electrical connection 11)	PBT-GF30, PVC, PE
Round plug M12 × 1 (electrical connection 36)	PBT-GF30, stainless steel 303
Plug connector (electrical connection 60)	PBT-GF30
Cable socket (electrical connection 61)	PBT-GF30, PA, silicone
Weight	80 g with G 1/4 (process connection 502)

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

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Environmental influences

Admissible temperatures for Attached cable (electrical connection 11) Roundplug M12 × 1 (electrical connection 36) Cable socket (electrical connection 61)	Medium -40 to +125 °C -40 to +125 °C -40 to +125 °C	Ambiance -40 to +100 °C -40 to +125 °C -40 to +125 °C	Storage -40 to +100 °C -40 to +125 °C -40 to +125 °C
Admissible humidity Operation Storage	100 % rel. humidity including condensation on the device outer case 90 % rel. humidity without condensation		
Admissible mechanical load Vibration resistance ^a Shock resistance ^b	20 g at 10 to 2000 Hz 50 g for 11 ms 100 g for 1 ms		
Electromagnetic compatibility Interference emission ^c Interference immunity ^c	Class B ^d Industrial requirement		
Protection type ^e Attached cable (electrical connection 11) Relative pressure measuring range Absolute pressure measuring range Round plug M12 × 1 ^f (electrical connection 36) Plug connector (electrical connection 60) Cable socket ^{e, g} (electrical connection 61)	IP66 IP67 IP66 IP30 IP65		

^a IEC 60068-2-6

^b IEC 60068-2-27

^c EN 61326-2-3

^d The product is suitable for industrial use as well as for households and small businesses.

^e EN 60529

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

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

Auxiliary power

Voltage supply U _B ^a 4 to 20 mA, two-wire (output 405) 0 V to 10 V, three-wire (output 415) 1 V to 5 V, three-wire (output 418) 1 V to 6 V, three-wire (output 420)	DC 10 to 25 V, rated voltage supply DC 24 V DC 15 to 25 V, rated voltage supply DC 24 V DC 10 to 25 V, rated voltage supply DC 24 V DC 10 to 25 V, rated voltage supply DC 24 V
Current consumption	≤ 25 mA
Reverse voltage protection	Yes
Electrical circuit	SELV
Requirement	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!

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Approvals/approval marks

Approval mark	Testing agency	Certificate/certification number	Inspection basis	Valid for
DNV GL	DNV GL	TAA00001JS	Class Guideline DNV GL-0339	Type 401021

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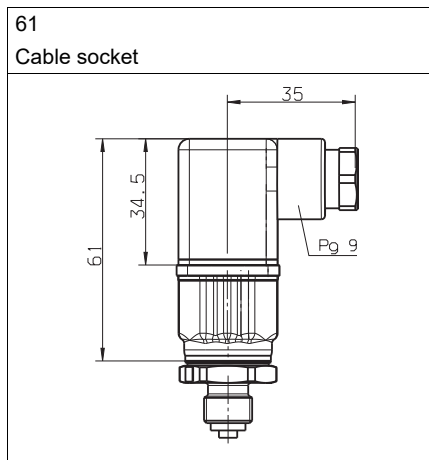
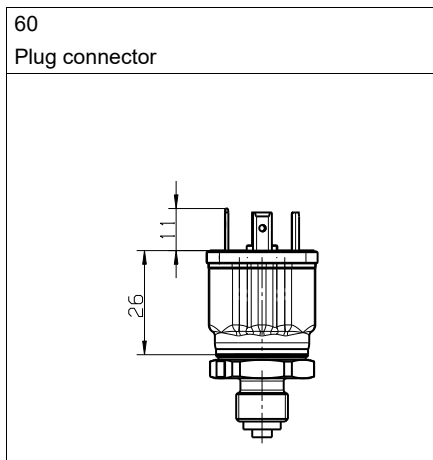
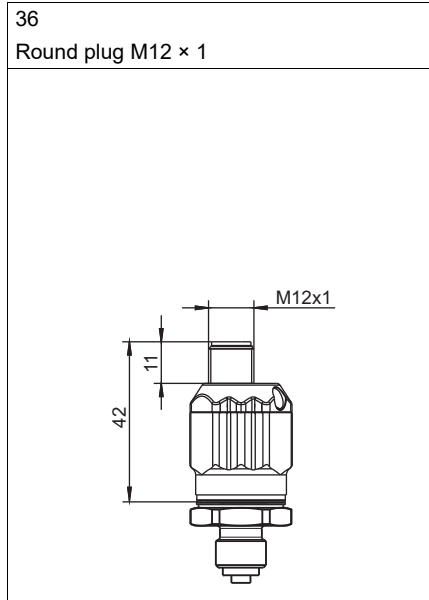
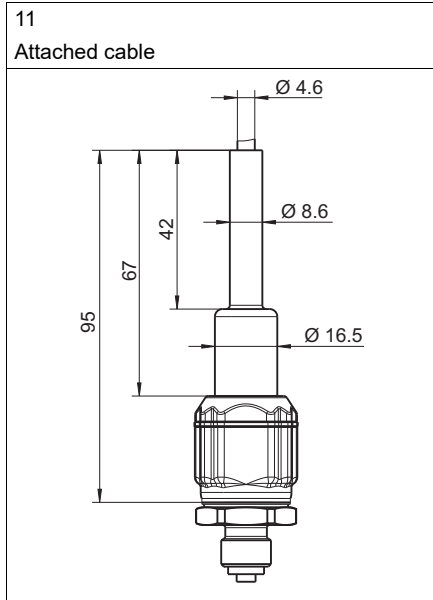
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Dimensions

Electrical connection



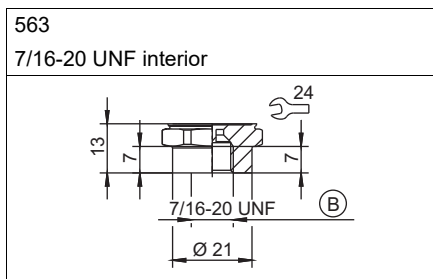
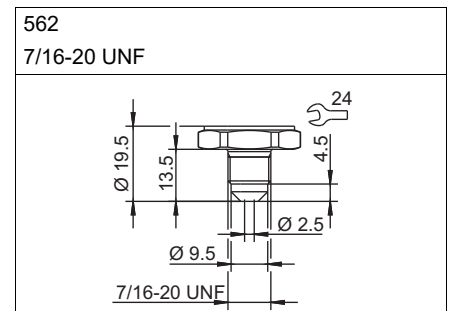
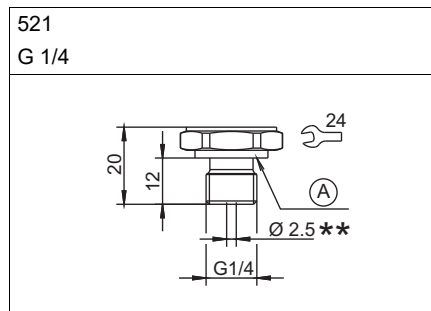
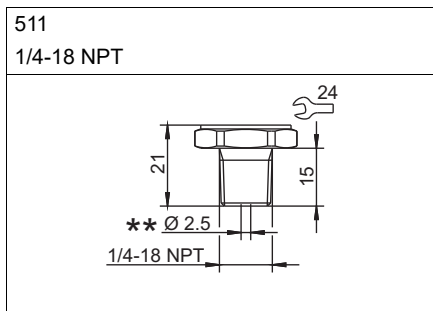
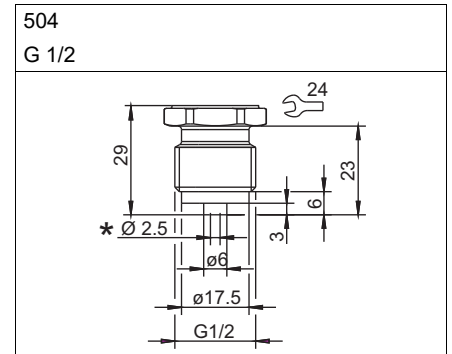
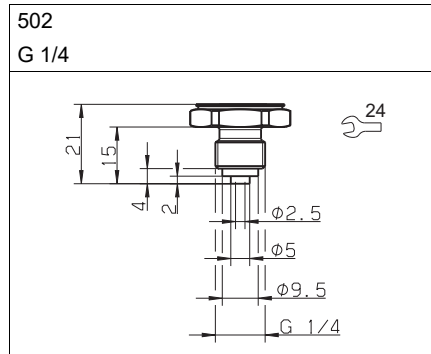
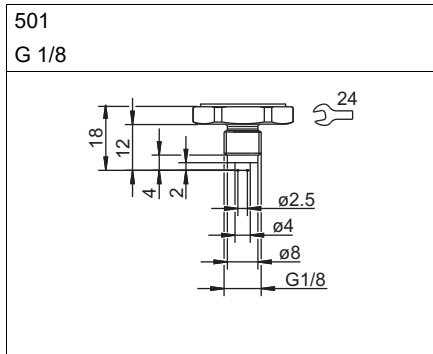
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Process connection



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

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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	36 Round plug M12 × 1	60 Plug connector 61 Cable socket
4 mA to 20 mA, two-wire (output 405)				
Voltage supply DC 10 to 25 V	U _B /S+ 0 V/S-	WH BN	1 3	1 2
0 V to 10 V, three-wire (output 415)				
Voltage supply DC 15 to 25 V	U _B 0 V/S- S+	WH BN GN	1 2 3	1 2 3
1 V to 5 V, three-wire (output 418) 1 V to 6 V, three-wire (output 420)				
Voltage supply DC 10 to 25 V	U _B 0 V/S- S+	WH BN GN	1 2 3	1 2 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 via the electrical connection or process connection.

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

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

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Order details

	(1) Basic type
401021	JUMO MIDAS S07 MA – OEM Pressure Transmitter
	(2) Basic type extension
000	None
999	Special version
	(3) Input (measuring range)
454	0 to 1 bar relative pressure
455	0 to 1.6 bar relative pressure
456	0 to 2.5 bar relative pressure
457	0 to 4 bar relative pressure
458	0 to 6 bar relative pressure
459	0 to 10 bar relative pressure
460	0 to 16 bar relative pressure
461	0 to 25 bar relative pressure
462	0 to 40 bar relative pressure
463	0 to 60 bar relative pressure
464	0 to 100 bar relative pressure
478	-1 to 0 bar relative pressure
479	-1 to +0.6 bar relative pressure
480	-1 to +1.5 bar relative pressure
481	-1 to +3 bar relative pressure
482	-1 to +5 bar relative pressure
483	-1 to +9 bar relative pressure
484	-1 to +15 bar relative pressure
485	-1 to +24 bar relative pressure
488	0 to 1 bar absolute pressure
489	0 to 1.6 bar absolute pressure
490	0 to 2.5 bar absolute pressure
491	0 to 4 bar absolute pressure
492	0 to 6 bar absolute pressure
493	0 to 10 bar absolute pressure
494	0 to 16 bar absolute pressure
495	0 to 25 bar absolute pressure
998	Special measuring range for absolute pressure
999	Special measuring range for relative pressure
	(4) Output
405	4 to 20 mA, two-wire
415	0 V to 10 V, three-wire
418	1 V to 5 V, three-wire
420	1 V to 6 V, three-wire
999	Special version
	(5) Process connection
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
562	7/16-20 UNF
563	7/16-20 UNF interior, with valve core handle

