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JUMO MIDAS S22 Ex

Miniature pressure transmitters for Ex-areas

Applications

- Oil, fuel, natural gas
- Painting plants/robots
- Process technology and process engineering
- Plant engineering
- Testing and laboratory technology
- Chemical industry

These recommendations are based on many years of experience; however, in individual cases they may not be fully applicable. We would be happy to provide further information, including regarding additional applications.

Brief description

The miniature pressure transmitters measures the pressure of gases, vapors, and liquids. The device operates according to the piezoresistive measuring principle. The output signal is a load-independent direct current which is linearly proportional to the input pressure.

The type 404720 meets the requirements:

- of device group II in the potentially explosive area of zones 1 and 2
- of device group III in the potentially explosive area of zones 21 und 22

The test certificate number of the EU type examination certificate is:

SEV 21 ATEX 0537 X

The certificate number of the IECEx certificate of conformity is:

IECEx SEV 21.0011X

Customer benefits

- **Cost saving**
Type pressure transmitter is based on the already well-proven sensor technology of the JUMO MIDAS pressure transmitter series. A high level of automation on the production line ensures consistently high quality and low production costs.
- **Process reliability**
The measuring device was designed and certified according to ATEX directives. Set quality standards ensure a full final inspection within the fully automated measuring and calibration system. High burst pressures up to 400 bar (10 times the measuring span) ensure that the process will operate safely even in the event of damage.
- **Versatility**
A broad spectrum of measuring ranges and a multitude of process connections ensure many variants, which can be specifically adapted to any application.



Type 404720

Special features

- Measuring ranges of 2.5 to 100 bar relative and absolute pressure rating
- ATEX approval
- Welded system
- Compact design type
- Static and dynamic measurements

Approvals and approval marks



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Technical data

General Information

Reference conditions	According to DIN EN 60770-1 and DIN IEC 61298-1
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 capability ^c bar	Burst pressure bar
		20 °C ^d % MSP	-20 to +80 °C ^e % MSP			
-1 to +1.5 bar relative pressure	0.3	0.5	1.3	≤ 0.2	10	24
-1 to +3 bar relative pressure	0.3	0.5	1.2		20	50
-1 to +5 bar relative pressure	0.3	0.5	1.2		40	60
-1 to +9 bar relative pressure	0.3	0.5	1.0		50	60
0 to 2.5 bar relative pressure	0.3	0.5	1.3		10	24
0 to 4 bar relative pressure	0.3	0.5	1.2		20	50
0 to 6 bar relative pressure	0.3	0.5	1.2		40	60
0 to 10 bar relative pressure	0.3	0.5	1.0		50	60
0 bar to 16 bar relative pressure	0.3	0.5	1.0		100	150
0 bar to 25 bar relative pressure	0.3	0.5	1.0		120	180
0 bar to 40 bar relative pressure	0.3	0.5	1.0		300	400
0 bar to 60 bar relative pressure	0.3	0.5	1.0		300	400
0 bar to 100 bar relative pressure	0.3	0.5	1.0		300	400
0 to 2.5 bar absolute pressure	0.3	0.5	1.3		10	24
0 to 4 bar absolute pressure	0.3	0.5	1.2		20	50
0 to 6 bar absolute pressure	0.3	0.5	1.2		40	60
0 to 10 bar absolute pressure	0.3	0.5	1.0		50	60
0 to 16 bar absolute pressure	0.3	0.5	1.0		100	150
0 to 25 bar absolute pressure	0.3	0.5	1.0		120	180
0 to 40 bar absolute pressure	0.3	0.5	1.0		300	400
0 to 60 bar absolute pressure	0.3	0.5	1.0	300	400	
0 to 100 bar absolute pressure	0.3	0.5	1.0	300	400	

^a Linearity according to limit point setting = 2 × BFSL (best fit straight line)

^b Reference conditions EN 61298-1

^c All pressure transmitters are vacuum proof.

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

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

^f MSP = measuring span

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Output

Output signal Current	4 to 20 mA, 2-wire
Step response T_{90}	≤ 3 ms
Burden 4 to 20 mA, 2-wire Burden influence	$R_B \leq (U_B - 16 \text{ V}) \div 0.022 \text{ A} (\Omega)$ $\leq 0.01 \% \text{ pro } 100 \Omega$

Mechanical features

Material	
Process connection	316Ti
Protective cap	PVC (for M12 × 1 with protective cap)
Membrane	316L
Housing	304
Electrical connection	304, PA (for round plug M12 × 1) 304, PUR (for attached cable)
Cable	PUR
Conductor cross section	0.22 mm ²
Bending radius	Max. 35 mm
Weight	Approx. 55 g
Explosion protection	ATEX: II 2G Ex ib IIC T6 ... T4 Gb ATEX: II 2D Ex ib IIIC T70°C ... T100°C Db IEC Ex: Ex ib IIC T6 ... T4 Gb IEC Ex: Ex ib IIIC T70°C ... T100°C Db

Environmental influences

Admissible temperatures	Front-flush	Not front-flush
Ambient temperature range	10 to 40 °C	-20 °C to +85 °C
Storage temperature range	10 to 40 °C	-20 °C to +85 °C
Medium temperature range	10 to 40 °C	-20 °C to +85 °C
Protection type	IP68 according to DIN EN 60529	
Electromagnetic compatibility ^a	Class B ^b	
Interference emission	Industrial requirement	
Interference immunity		
Mechanical load		
Shock resistance ^c	20 g/11 ms, 50 g for 1 ms	
Vibration resistance ^d	10 g at 10 to 2000 Hz	

^a EN 61326

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

^c DIN EN 60068-2-27

^d DIN EN 60068-2-6

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Electrical data

Voltage supply U_B^a 4 to 20 mA, 2-wire (output 405)	DC 16 to 28 V
Current consumption	≤ 23 mA
Electrical circuit	Intrinsically safe

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

Approvals and approval marks

ATEX Testing agency Certificates/certification numbers Inspection basis Valid for	Eurofins Electrosuisse Product Testing AG SEV 21 ATEX 0537 X DIN EN 60079-0, DIN EN 60079-11 Type 404720
IEC Ex Testing agency Certificates/certification numbers Inspection basis Valid for	Eurofins Electrosuisse Product Testing AG IECEX SEV 21.0011X IEC 60079-0, IEC 60079-11 Type 404720

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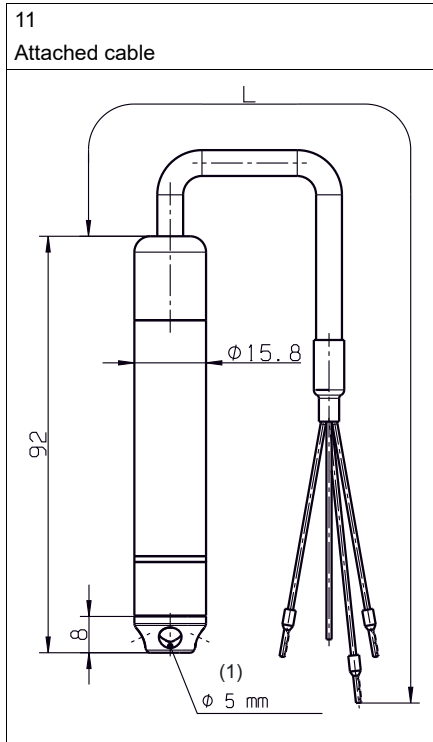
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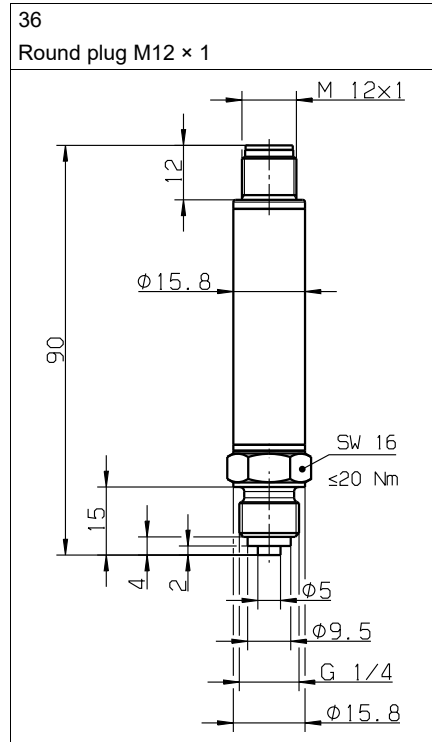


Dimensions

Electrical connection



(1) 5x drilled hole



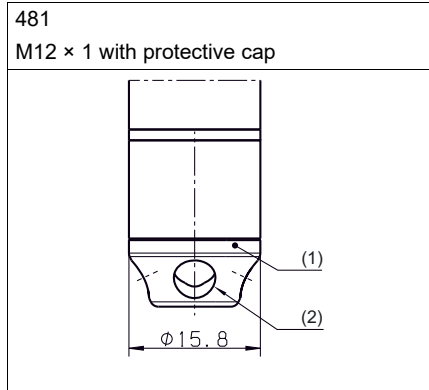
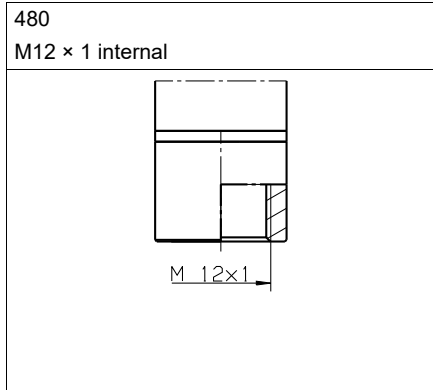
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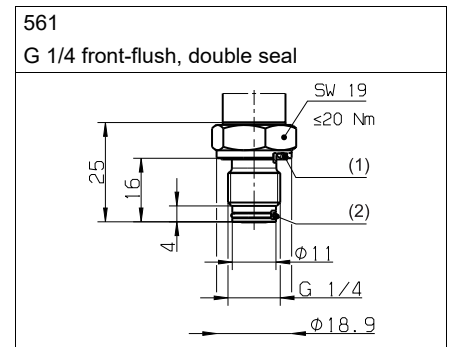
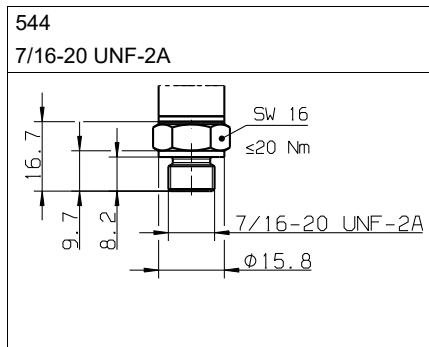
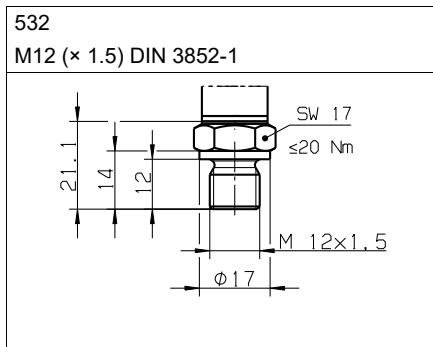
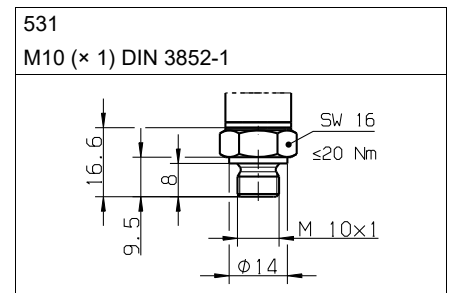
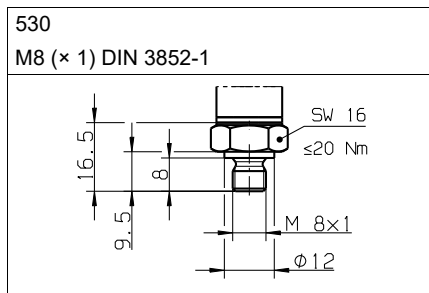
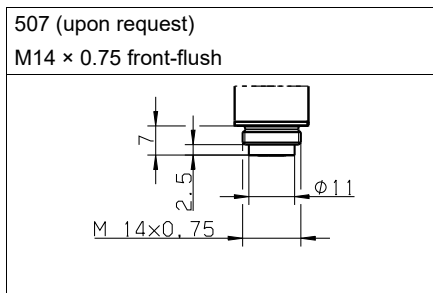
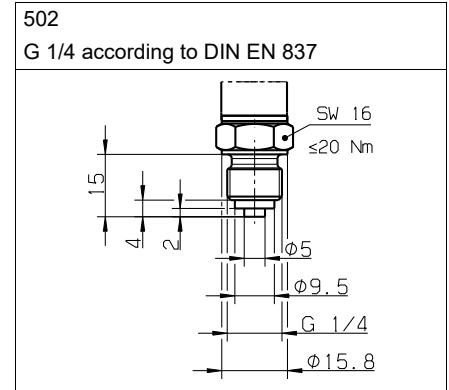
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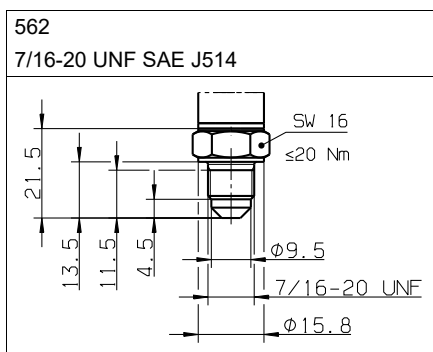
Process connections



- (1) Protective cap
- (2) 5× drilled hole Ø 5 mm



- (1) Profile seal G 1/4
- (2) O-ring 9×1



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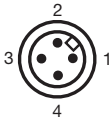


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Connection diagram

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	Accessories Cable box angled/straight	
				PVC	PUR
4 to 20 mA, 2-wire (output 405)					
Voltage supply DC 16 to 28 V	U _B /S+ 0 V/S-	WH BU	1 3	BN BU	WH BU
Shielding					
Caution: ground the device! Ground all connected devices (such as pumps and valves) to the same potential!		BK	-	-	-

^a Figure: Connection to the pressure transmitter

CAUTION!

Ground (functional grounding) the housing of the pressure transmitter using the process connection to protect against electromagnetic fields and electromagnetic charges!

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Order details

	(1) Basic type
404720	JUMO MIDAS S22 Ex - Miniature Pressure Transmitter for Use in Ex-Areas
	(2) Basic type extension
000	None
	(3) Input – nominal measuring range
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
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 bar to 16 bar relative pressure
461	0 bar to 25 bar relative pressure
462	0 bar to 40 bar relative pressure
463	0 bar to 60 bar relative pressure
464	0 bar to 100 bar relative 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
505	0 to 40 bar absolute pressure
506	0 to 60 bar absolute pressure
507	0 to 100 bar absolute pressure
998	Special measuring range for absolute pressure
999	Special measuring range for relative pressure
	(4) Output
405	4 to 20 mA, 2-wire
	(5) Process connection
480	M12 × 1 internal
481	M12 × 1 with protective cap
502	G 1/4 according to DIN EN 837
507	M14 × 0.75 front-flush (upon request)
530	M8 (× 1) DIN 3852-1
531	M10 (× 1) DIN 3852-1
532	M12 (× 1.5) DIN 3852-1
544	7/16-20 UNF-2A
561	G 1/4 front-flush, double seal
562	7/16-20 UNF SAE J514

