

JUMO GmbH & Co. KG
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JUMO Process Control, Inc.
6724 Joy Road
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JUMO MIDAS S07 MA

OEM Pressure Transmitter - Maritime Approved

Areas of application

In the area of shipping and offshore:

- Heating, ventilation, and air-conditioning
- Refrigeration
- Motors
- Separator
- Pump manufacture

Special features

- Shipbuilding approval
- 1 to 100 bar relative pressure, up to 25 bar also in absolute pressure
- High process reliability due to a seal-less welded measuring system
- Robust and maintenance-free measurement technology due to extreme overload resistance
- Robust construction for a long service life
- Parts in contact with media are made of stainless steel

Description

The pressure transmitter is suitable for measuring liquids and can be used in harsh conditions.

The used silicon sensor can handle extreme overloading even in the lowest measuring ranges and is capable of handling millions of pressure cycles.

The device structure ensures optimum protection against process medium leakage



**Type 401021
with cable socket**



**Type 401021
with M12 plug connector**

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Approval marks and certificates



Certificates for approved device versions are available for download on the manufacturer's website.

Technical data

Electrical safety

Requirements	DIN EN 61010-1 The device must be equipped with an electrical circuit that meets the requirements for "Limited-energy circuits".
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Electrical data

Reference conditions	DIN 16086, DIN EN 60770
Voltage supply U_B^a 4 to 20 mA, 2-wire 0 V to 10 V, 3-wire 1 V to 5 V, 3-wire 1 V to 6 V, 3-wire	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

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

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Inputs

Measuring range and accuracy

Measuring range	Linearity ^a	Accuracy at		Long-term stability ^b	Overload capacity ^c	Burst pressure
bar	% MSP ^f	20 °C ^d % MSP	-20 °C to +100 °C ^e % MSP	% MSP per year	bar	bar
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

Outputs

Analog output	
Current	4 to 20 mA, 2-wire
Voltage	0 V to 10 V, 3-wire 1 V to 5 V, 3-wire 1 V to 6 V, 3-wire
Step response t_{90}	≤ 5 ms
Burden	
Current	
4 to 20 mA, 2-wire	$R_L \leq (U_B - 8 \text{ V}) \div 0.02 \text{ A } (\Omega)$
Voltage	
0 V to 10 V, 3-wire	$R_L \geq 10 \text{ k}\Omega$
1 V to 5 V, 3-wire	$R_L \geq 10 \text{ k}\Omega$
1 V to 6 V, 3-wire	$R_L \geq 10 \text{ k}\Omega$

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Environmental influences

Medium temperature	
Standard	-40 to +125 °C
H ₂ ready	-40 to +120 °C
Ambient temperature for electrical connection	
Attached cable	-40 to +100 °C
M12 Plug connector	-40 to +125 °C
Line socket	-40 to +125 °C
Storage temperature during electrical connection	
Attached cable	-40 to +100 °C
M12 Plug connector	-40 to +125 °C
Line socket	-40 to +125 °C
Admissible humidity	
Operation	100 % rel. humidity including condensation on the device outer case
Storage	90 % rel. humidity without condensation
Admissible mechanical load	DIN IEC 60068-2-6, DIN IEC 60068-2-27
Vibration resistance	20 g at 10 to 2000 Hz
Shock resistance	50 g for 11 ms, 100 g for 1 ms
Electromagnetic compatibility (EMC)	DIN EN 61326-2-3:2022
Interference emission	Class B ^a
Interference immunity	Industrial requirement
Protection type	DIN EN 60529
Attached cable	IP66 (relative pressure measuring range), IP67 (absolute pressure measuring range)
M12 Plug connector ^b	IP66
Line socket ^{b,c}	IP65

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

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

^c Connecting cable diameter: minimum 6 mm, maximum 8 mm.

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**Mechanical features**

Material	
Process connection ^a	
Standard	Stainless steel 304
H ₂ ready	Stainless steel 316 L
Membranes	Stainless steel 316 L
Housing	Stainless steel 304
Attached cable	PBT-GF30, PVC, PE
Round plug M12 × 1	PBT-GF30, stainless steel 303
Plug connector DIN EN 175301-803	PBT-GF30
Line socket	PBT-GF30, PA, silicone
Sensor	Silicon
Filling oil	Synthetic oil
Mounting position	Any
Calibration position	Device upright, process connection at the bottom
Weight	80 g with process connection G 1/4
Admissible load changes	> 10 million

^a Pressure transmitters with process connection G 1/4 are supplied with an FKM seal. Ensure the medium durability of the seal material!

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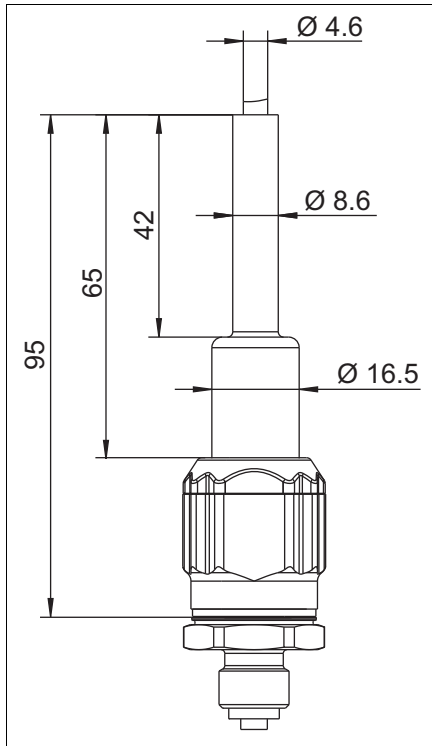
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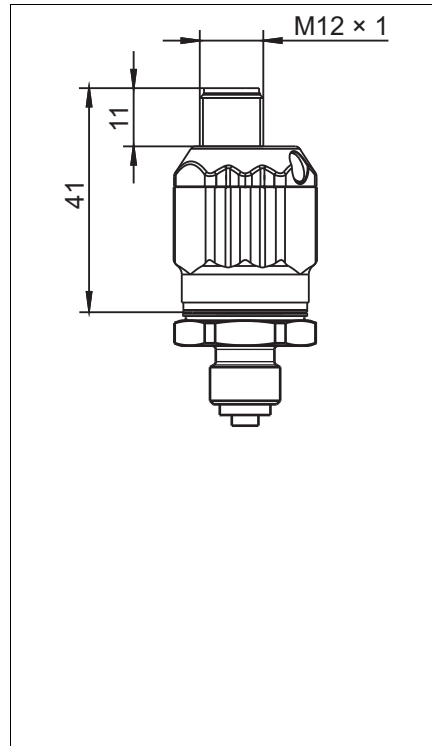
Dimensions

Electrical connection

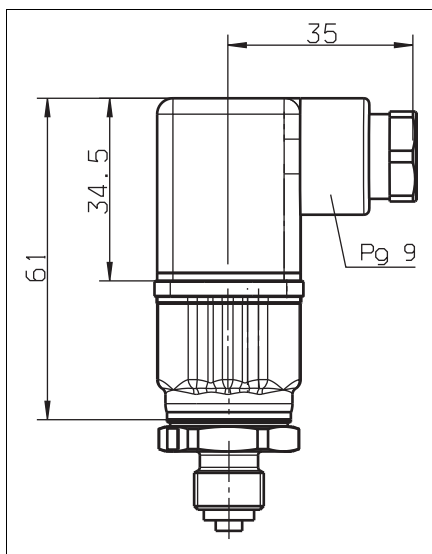
Attached cable



M12 Plug connector



Line socket



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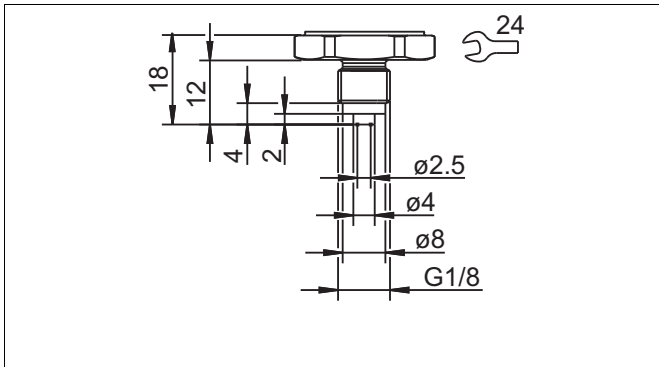
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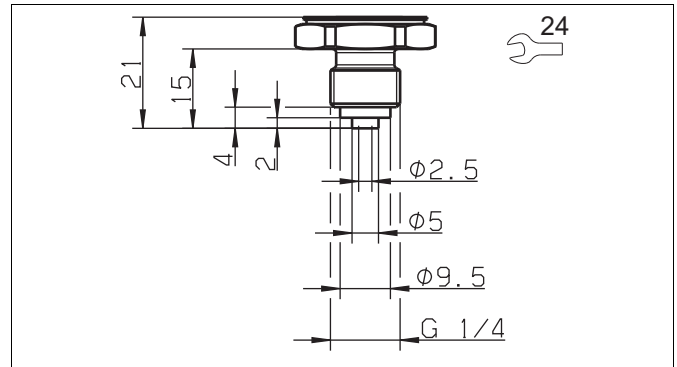


Process connections

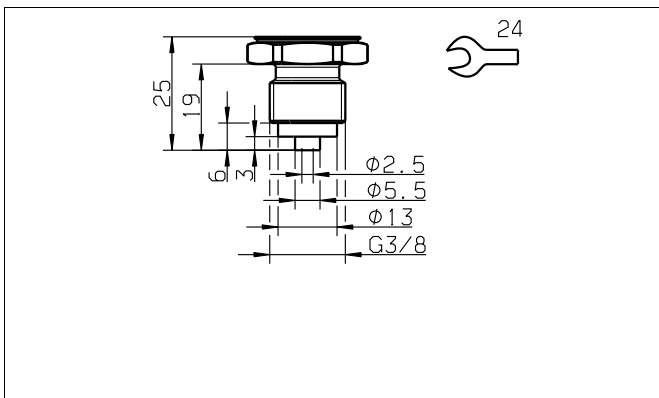
G 1/8 DIN EN 837



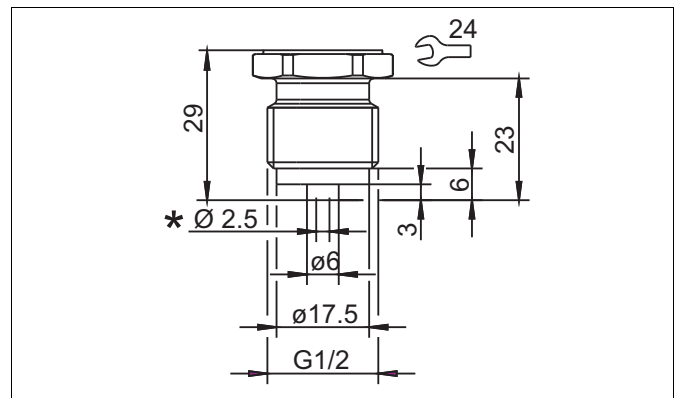
G 1/4 DIN EN 837



G 3/8 DIN EN 837

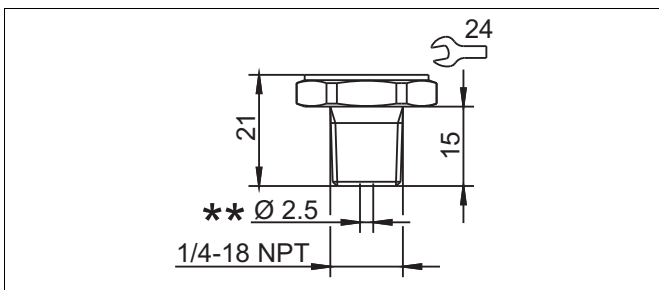


G 1/2 DIN EN 837



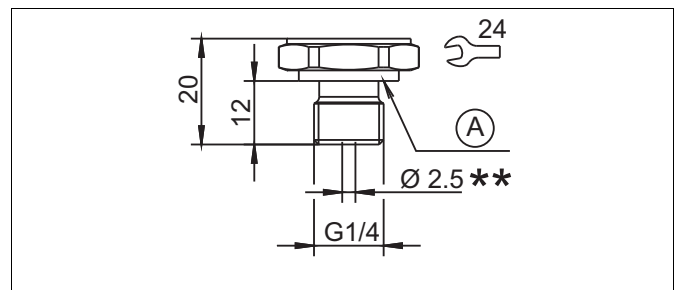
* Extra code 630 pressure channel ø 12 mm

1/4" – 18 NPT DIN EN 837



** Extra code 630 pressure channel ø 8 mm

G 1/4 DIN 3852-11



** Extra code 630 pressure channel ø 8 mm

A Profile seal G 1/4

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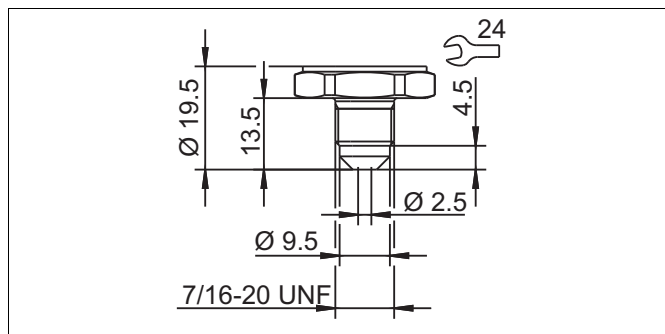
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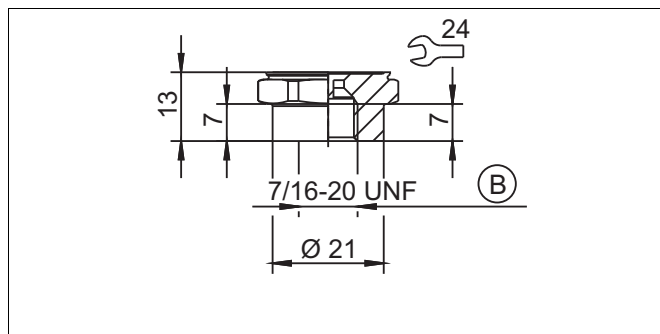
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7/16" – 20 UNF



7/16" – 20 UNF interior with valve core handle



B Valve core handle

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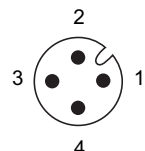
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Connection elements

The connection diagram in the data sheet provides information on product selection.

For the electrical connection, only use the installation instructions or the operating manual.

		
Attached cable	M12 Plug connector	Plug connector DIN EN 175301-803, Line socket

Terminal assignment

Designation	Description	Assignment		
Output 4 to 20 mA, 2-wire Voltage supply DC 10 to 25 V	$U_B/S+$ 0 V/S-	WH (white) BN (brown)	1 3	1 2
Output 0 to 10 V, 3-wire Voltage supply DC 15 to 25 V	U_B 0 V/S- S+	WH (white) BN (brown) GN (green)	1 2 3	1 2 3
Output 1 to 5 V, 3-wire Output 1 to 6 V, 3-wire Voltage supply DC 10 to 25 V	U_B 0 V/S- S+	WH (white) BN (brown) GN (green)	1 2 3	1 2 3
Functional bonding conductor FB ^a		—	4	

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

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Order details

(1) Basic type	
401021	JUMO MIDAS S07 MA – OEM Pressure Transmitter – Maritime Approved
(2) Basic type extension	
000	None
999	Special version
(3) Input	
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, 2-wire
415	0 V to 10 V, 3-wire
418	1 V to 5 V, 3-wire
420	1 V to 6 V, 3-wire
(5) Process connection	
501	G 1/8 DIN EN 837
502	G 1/4 DIN EN 837
503	G 3/8 DIN EN 837
504	G 1/2 DIN EN 837
511	1/4" – 18 NPT DIN EN 837
521	G 1/4 DIN 3852-11
562	7/16" – 20 UNF
563	7/16" – 20 UNF interior, with valve core handle

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(6) Process connection material	
20	CrNi (stainless steel)
53	CrNi 1.4404/1.4435
(7) Electrical connection	
11	Attached cable ^a
36	M12 plug connector
61	Cable socket DIN EN 175301-803, Form A
(8) Extra codes	
000	None
061	UL approval
462	Inverted output signal
591	Choke in the pressure channel
624	Oil and grease free
630	Enlarged pressure channel ^b
876	Test report
1160	H ₂ ready – mobile hydrogen application ^c

^a The standard cable length is 2 m. Further lengths up to a max. of 5 m are available upon request.

^b An enlarged pressure channel is only available in conjunction with process connections 504, 511 and 521.

^c Only available with process connections 501, 502, 503, 504 or 511 and process connection material 53.

Order code (1) (2) (3) (4) (5) (6) (7) (8)
 / - - - - - / , ...^a
Order example 401021 / 000 - 460 - 412 - 504 - 20 - 36 / 000

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