

JUMO MIDAS S05

OEM Pressure Transmitter – Universal

Description

The pressure transmitter is available with relative pressure 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 in harsh conditions. 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.

Areas of application

- HVAC (heating, ventilating, and air conditioning)
- Refrigeration engineering
- Compressor engineering
- Machinery and plant engineering
- Packaging industry

Special features

- Up to 100 bar relative pressure, and also up to 40 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
- 60 % quicker device installation with the QUICKON quick-clamp technology
- Robust construction guarantees a long operating life
- Wetted stainless steel parts



Type 401010 with cable socket



Type 401010 with M12 × 1 connector

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Trademark information

All trademarks and trade and company names used are the property of their rightful owners or authors.

Approval marks and certificates



Certificates for approved device versions are available for download on the manufacturer's website.
Russian documentation upon request.



Technical data

Electrical data

Voltage supply U_B^a 4 to 20 mA, two-wire DC 0.5 to 4.5 V, three-wire DC 0 to 10 V, three-wire DC 1 to 5 V, three-wire DC 1 to 6 V, three-wire	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 incl. load 4 to 20 mA, two-wire DC 0.5 to 4.5 V, three-wire DC 0 to 10 V, three-wire DC 1 to 5 V, three-wire DC 1 to 6 V, three-wire	≤ 25 mA ≤ 3 mA ≤ 3 mA ≤ 3 mA ≤ 3 mA
Reverse voltage protection 4 to 20 mA, two-wire DC 0.5 to 4.5 V, three-wire DC 0 to 10 V, three-wire DC 1 to 5 V, three-wire DC 1 to 6 V, three-wire	Yes No Yes Yes 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!



Inputs

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 +100 °C ^e % MSP			
0 to 1 bar relative/absolute pressure	0.3	0.6	1.5	< 0.2	4	6
0 to 1.6 bar relative/absolute pressure	0.25	0.5	1.4		6	10
0 to 2.5 bar relative/absolute pressure	0.25	0.5	1.3		10	15
0 to 4 bar relative/absolute pressure	0.25	0.5	1.2		16	24
0 to 6 bar relative/absolute pressure	0.25	0.5	1.2		24	36
0 to 10 bar relative/absolute pressure	0.25	0.5	1.0		40	60
0 to 16 bar relative/absolute pressure	0.2	0.5	1.0		60	100
0 to 25 bar relative/absolute pressure	0.2	0.5	1.0		100	150
0 to 40 bar relative/absolute pressure	0.2	0.5	1.0		100	150
0 to 60 bar relative pressure	0.2	0.5	1.0		180	250
0 to 100 bar relative pressure	0.2	0.5	1.0		180	250
-600 to +600 mbar relative pressure	0.3	0.6	1.5		4	6
-1 to 0 bar relative pressure	0.3	0.6	1.5		4	6
-1 to +0.6 bar relative pressure	0.3	0.6	1.5		6	10
-1 to +1 bar relative pressure	0.3	0.6	1.5		6	10
-1 to +1.5 bar relative pressure	0.3	0.6	1.4		10	15
-1 to +3 bar relative pressure	0.3	0.5	1.3		16	24
-1 to +5 bar relative pressure	0.25	0.5	1.3		24	36
-1 to +9 bar relative pressure	0.25	0.5	1.2		40	60
-1 to +15 bar relative pressure	0.25	0.5	1.0		60	100
-1 to +24 bar relative pressure	0.2	0.5	1.0	100	150	
-1 to +30 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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Outputs

Analog output

Analog output ^a Current Voltage	4 to 20 mA, two-wire DC 0.5 to 4.5 V, three-wire, ratiometric 10 to 90 % of the voltage supply DC 0 to 10 V, three-wire DC 1 to 5 V, three-wire DC 1 to 6 V, three-wire
Step response T_{90}	≤ 5 ms
Burden Current Voltage (burden connected to "0 V/S-")	$R_L \leq (U_B - 8 \text{ V}) \div 0.02 \text{ A } (\Omega)$ at 4 to 20 mA, two-wire $R_L \geq 5 \text{ k}\Omega$ at DC 0.5 to 4.5 V, three-wire $R_L \geq 10 \text{ k}\Omega$ at DC 0 to 10 V, three-wire $R_L \geq 10 \text{ k}\Omega$ at DC 1 to 5 V, three-wire $R_L \geq 10 \text{ k}\Omega$ at DC 1 to 6 V, three-wire

^a Further outputs are available upon request.



Environmental influences

Medium temperature	
Standard	-40 to +125 °C
H ₂ ready	-40 to +120 °C
Ambient temperature for electrical connection	
Attached cable	-30 to +100 °C At ambient temperature of -30 °C restricted function. Only use when stationary. Risk of cable break.
Round plug M12 × 1	-40 to +125 °C
Bayonet connector	-40 to +125 °C
Line socket	-40 to +125 °C
Storage temperature for electrical connection	
Attached cable	-30 to +100 °C
Round plug M12 × 1	-40 to +125 °C
Bayonet 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	
Vibration resistance	20 g at 10 to 2000 Hz, according to IEC 60068-2-6
Shock resistance	50 g for 11 ms, 100 g for 1 ms, according to IEC 60068-2-27
Electromagnetic compatibility (EMC)	According to EN 61326-2-3
Interference emission	Class B ^a
Interference immunity	Industrial requirement
Protection type for electrical connection	According to EN 60529
Attached cable	IP66 for relative pressure measuring range, IP67 for absolute pressure measuring range
QUICKON ^b	IP66
Round plug M12 × 1 ^c	IP66
Bayonet connector ^c	IP67
Line socket ^{c, d}	IP65

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

^b Connecting cable diameter, minimum 3.5 mm, maximum 6 mm

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

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

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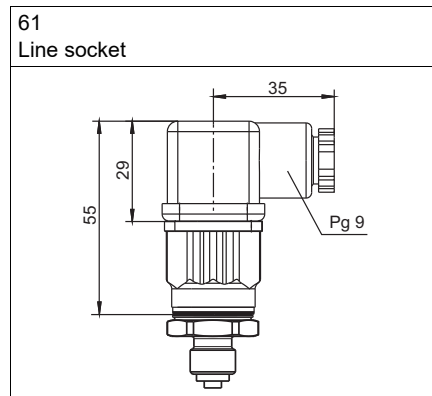
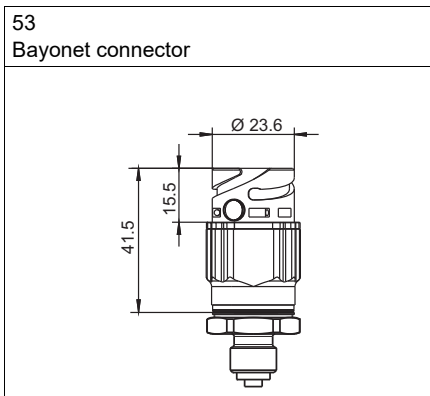
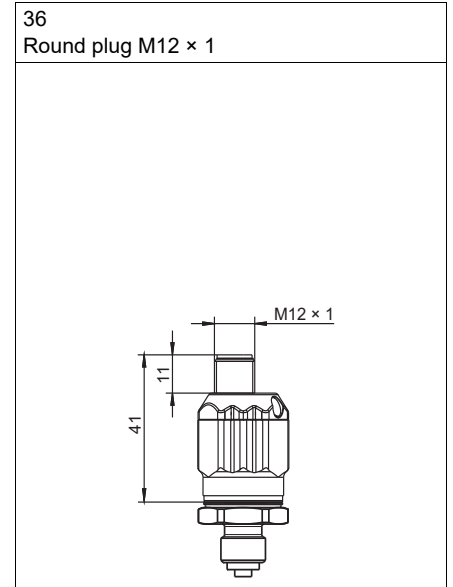
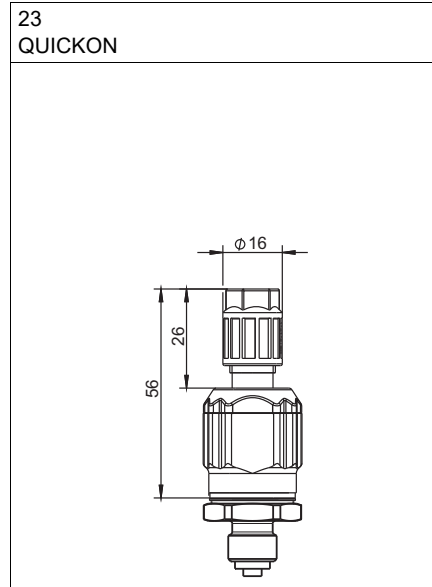
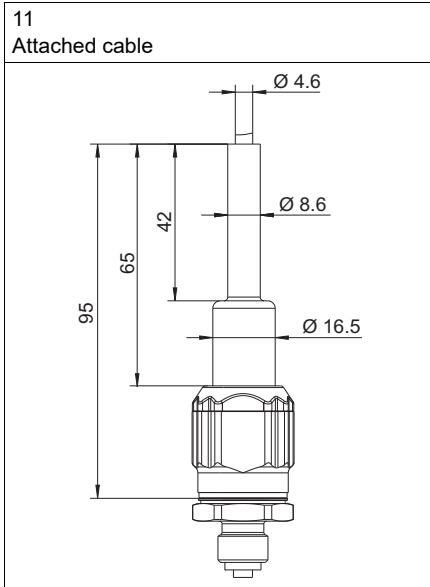
Mechanical features

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
QUICKON	PBT-GF30
Round plug M12 × 1	PBT-GF30, stainless steel 303
Bayonet connector	PBT-GF30
Line socket	PBT-GF30, PA, silicone
Weight	80 g with process connection G 1/4

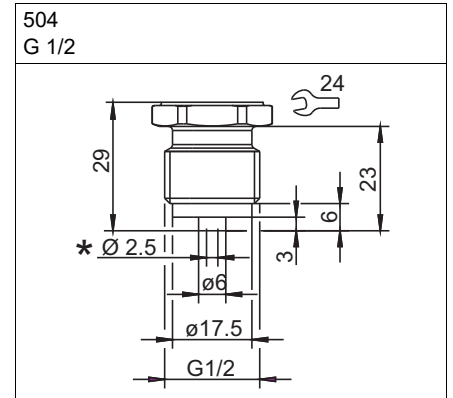
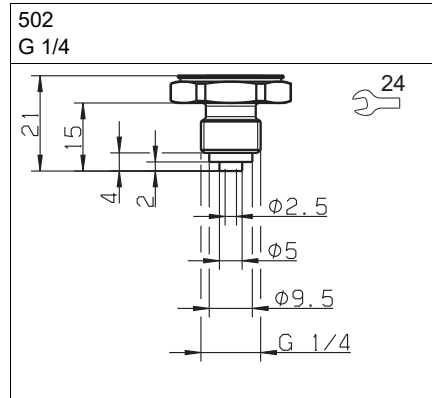
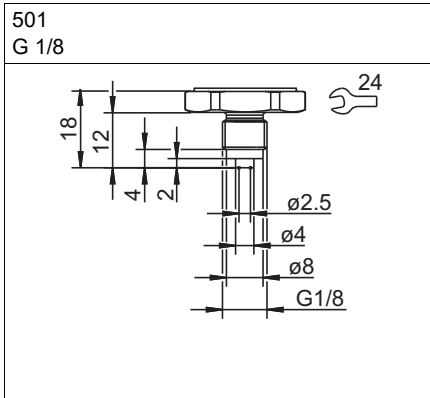
^a Pressure transmitters with process connection G 1/4 are supplied with an FKM seal. Ensure the medium durability of the seal material!

Dimensions

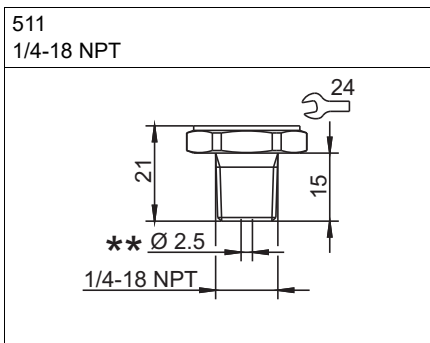
Electrical connection



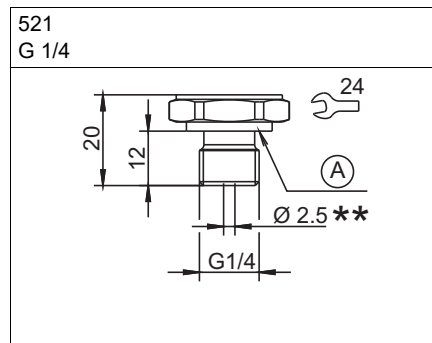
Process connection



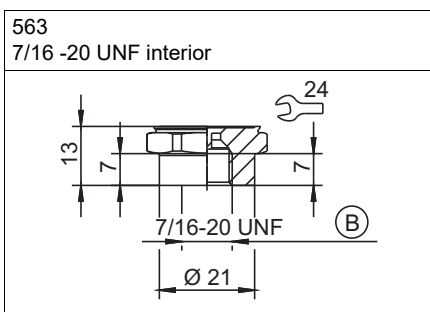
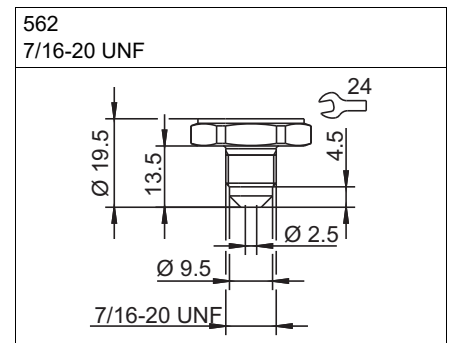
* Extra code 630 pressure channel
Ø 12 mm



** Extra code 630 pressure channel
Ø 8 mm



A Profile seal G 1/4
** Extra code 630 pressure channel
Ø 8 mm


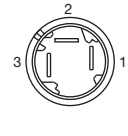
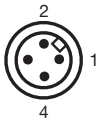
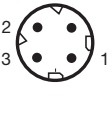
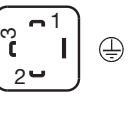




B With valve core handle

Connection diagram

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

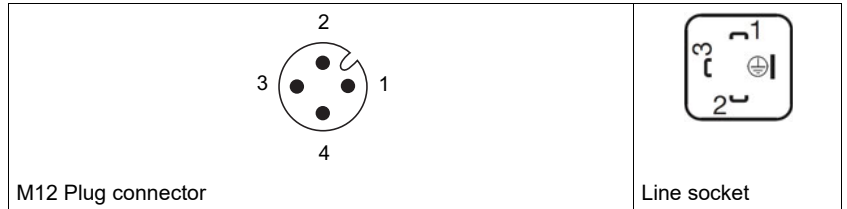
For the electrical connection, only use the installation instructions or the operating manual.



Connection		Terminal assignment (figure: connection to the pressure transmitter)				
						
		Attached cable	QUICKON	Round plug M12 × 1	Bayonet connector	Line socket
4 to 20 mA, two-wire						
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						
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						
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 DC 1 to 6 V, three-wire						
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 ^a		-	-	4	-	

^a 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")!



Designation	Description	Assignment			
		B1	B2	B3	B4
4 to 20 mA, two-wire Voltage supply DC 8 to 30 V	U _B /S+	1	4	-	2
	0 V/S-	2	1		1
DC 0 to 10 V, three-wire 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 DC 1 to 6 V, three-wire 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 ^a		-	-	-	

^a 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!

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Order details

	(1) Basic type
401010/000	JUMO MIDAS S05 – OEM Pressure Transmitter – Universal
	(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
450	-600 to +600 mbar relative pressure
478	-1 to 0 bar relative pressure
479	-1 to +0.6 bar relative pressure
449	-1 to +1 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
527	-1 to +30 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
505	0 to 40 bar absolute pressure
998	Special measuring range for absolute pressure
999	Special measuring range for relative pressure
	(3) Output
405	4 to 20 mA, two-wire
412	DC 0.5 to 4.5 V, three-wire
415	DC 0 to 10 V, three-wire
418	DC 1 to 5 V, three-wire
420	DC 1 to 6 V, three-wire

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Stock versions

Order code	Part no.
401010/000-454-405-504-20-61/000	00529815
401010/000-456-405-502-20-61/000	43012486
401010/000-457-405-502-20-61/000	00517155
401010/000-458-405-502-20-61/000	00517148
401010/000-459-405-502-20-61/000	00517139
401010/000-459-405-504-20-61/000	00518371
401010/000-460-405-502-20-61/000	00517133
401010/000-460-405-504-20-61/000	43012582
401010/000-461-405-502-20-61/000	00523660
401010/000-483-405-502-20-61/000	00523648
401010/000-491-405-502-20-61/000	43012517
401010/000-492-405-502-20-61/000	00526283

Accessories

Designation	Part no.
Line socket, straight, 4-pole, M12 × 1, 2 m	00404585
Line socket, angled, 4-pole, M12 × 1, 2 m	00409334
Bayonet connector with 3 m cable	00463392