JUMO GmbH & Co. KG
Hausadresse: Moritz-Juchheim-Straße 1, 36039 Fulda, Germany
Lieferadresse: Mackenrodtstraße 14, 36039 Fulda, Germany
Postadresse: 36035 Fulda, Germany

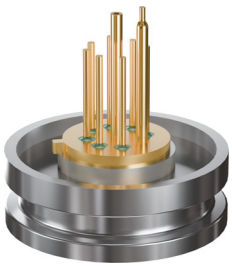
Telefon: +49 661 6003-716
Telefax: +49 661 6003-504
E-Mail: mail@jumo.net
Internet: www.jumo.net

JUMO CEROS S15 B

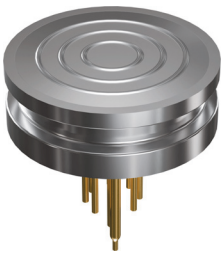
Analog pressure measuring cell

Areas of application

- Food and pharmaceutical industry
- CIP and SIP plants
- Air conditioning and refrigeration applications
- Mechanical and plant engineering
- Hygienic applications



Type 405115 (rear view)



Type 405115 (front view)

Special features

- Measuring ranges from 100 mbar (5.08 psi) up to 100 bar (1450 psi)
- Operating temperature from -40 to +125 °C
- Robust stainless steel housing
- Front-flush welded membrane with gap-free design
- Integrated PTC
- Low space requirement
- Flexible in its application
- Simple, predefined temperature compensation
- With long life cycle and long-term stability

Description

The pressure measuring cell measures the absolute or relative pressure of liquid, steam, and gaseous media.

The pressure measuring cell is a module for producing pressure transmitters and is welded into the relevant application.

The pressure transmitters are suitable for mounting in pipes and containers. They are mounted using individual process connections.

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Technical data

Electrical safety

Requirements	DIN EN 61010-1:2020 The device must be equipped with an electrical circuit that meets the requirements for "Limited-energy circuits".

Electrical data

Voltage supply	DC 5 to 12 V
Current consumption	< 3 mA
Electrical connection	
Connection elements	Short pin (3.5 mm), long pin (8 mm)

	Min.	Typ.	Max.
Bridge resistance			
Temperature coefficient	+ 0.25 % K	+ 0.28 % K	+ 0.31 % K
Resistance at 20 °C	2,9 kΩ	3.5 kΩ	4 kΩ
Resistance of the sensor at 20 °C	1.80 kΩ	2.15 kΩ	2.30 kΩ

Inputs

Measurands

Reference conditions

Basic principles	DIN EN 61298-1, DIN 16086, DIN EN 60770
Installation position	Any
Calibration position	Measuring cell vertically upright, membrane downward

Relative pressure

Measuring range	**Linearity**[a]	**TK offset uncompensated**			**Long-term stability-Long-term stability**	**Overload capability**[b]	**Burst pressure**
		Min.	Typ.	Max.			
	% MSP[c]	% MSP	% MSP	% MSP	% MSP per year	bar	bar
0 to 100 mbar	0.4	0	0.375	0.750	≤ 0.2	0.5	3
0 to 0.35 bar	0.4	0	0.125	0.250	≤ 0.2	1	10
0 to 1 bar	0.4	0	0.080	0.160	≤ 0.2	3	20
0 to 2.5 bar	0.4	0	0.045	0.090	≤ 0.2	8	40
0 to 5 bar	0.4	0	0.035	0.070	≤ 0.2	15	50
0 to 10 bar	0.4	0	0.0275	0.055	≤ 0.2	30	60
0 to 30 bar	0.4	0	0.015	0.030	≤ 0.2	90	200
0 to 100 bar	0.4	0	0.007	0.015	≤ 0.2	250	400

[a] According to limit point setting.
[b] All pressure transmitters are vacuum proof.
[c] MSP = measuring span.

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Absolute pressure

Measuring range	**Linearity**[a]	**TK offset uncompensated**			**Long-term stability-Long-term stability**	**Overload capability**[b]	**Burst pressure**
		Min.	Typ.	Max.			
bar	% MSP[c]	% MSP	% MSP	% MSP	% MSP per year	bar	bar
0 to 0.35	0.4	0	0.125	0.25	≤ 0.2	1	10
0 to 1	0.4	0	0.080	0.160	≤ 0.2	3	20
0 to 2.5	0.4	0	0.045	0.090	≤ 0.2	8	40
0 to 5	0.4	0	0.035	0.070	≤ 0.2	15	50
0 to 10	0.4	0	0.0275	0.055	≤ 0.2	30	60
0 to 30	0.4	0	0.015	0.030	≤ 0.2	90	200
0 to 100	0.4	0	0.007	0.015	≤ 0.2	250	400

[a] According to limit point setting.

[b] All pressure transmitters are vacuum proof.

[c] MSP = measuring span.

Outputs

Analog outputs

Values with a power supply of 5 V

	Min.	Typ.	Max.
Offset	-25 mV	0 mV	+25 mV
at 100 mbar	-35 mV	0 mV	+35 mV
Measuring span	50 mV	100 mV	150 mV
at 100 mbar	20 mV	60 mV	130 mV
at 350 mbar	30 mV	100 mV	170 mV
at 100 bar	190 mV	250 mV	310 mV

Environmental influences

Admissible operating temperature[a]	-40 to +125 °C
at 100 mbar	-10 to +100 °C
Admissible humidity during storage	< 90% relative humidity, without condensation formation
Oscillation	DIN EN 60068-2-6
Amplitude	1.5 mm at 10 to 2000 Hz
Acceleration	20 g at 5 to 2000 Hz
Shock	DIN EN 60068-2-27
	75 g for 11 ms, 100 g for 1 ms
Insulation voltage	DC 500 V
Insulation resistance	>200 MΩ at DC 50 V

[a] Medium temperature, ambient temperature, storage temperature.

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Mechanical features

Sensor

Measuring principle	Piezoresistive (absolute pressure sensor, relative pressure sensor)
Admissible load changes	> 10 million

Materials

Components in contact with the medium[a]	
Membranes	AISI 316 L (1.4435)
Welding ring	AISI 316 L (1.4404)
Process connection (optional)	AISI 316 TI (1.4571)
Filling oil	Silicon oil (FDA compliant)

[a] Observe the resistance of the components in contact with the medium.

Placing onto market

The component does not meet the requirements of "equipment with safety function" according to Pressure Equipment Directive 2014/68/EU.

The pressure measuring cell is a component and not an end device and is therefore not subject to application-specific EMC requirements.

Placing the resulting end product onto the market in the European Economic Area (EEA) means that testing according to the mentioned standards, a declaration of conformity, and affixing a CE identification marking must be carried out independently.

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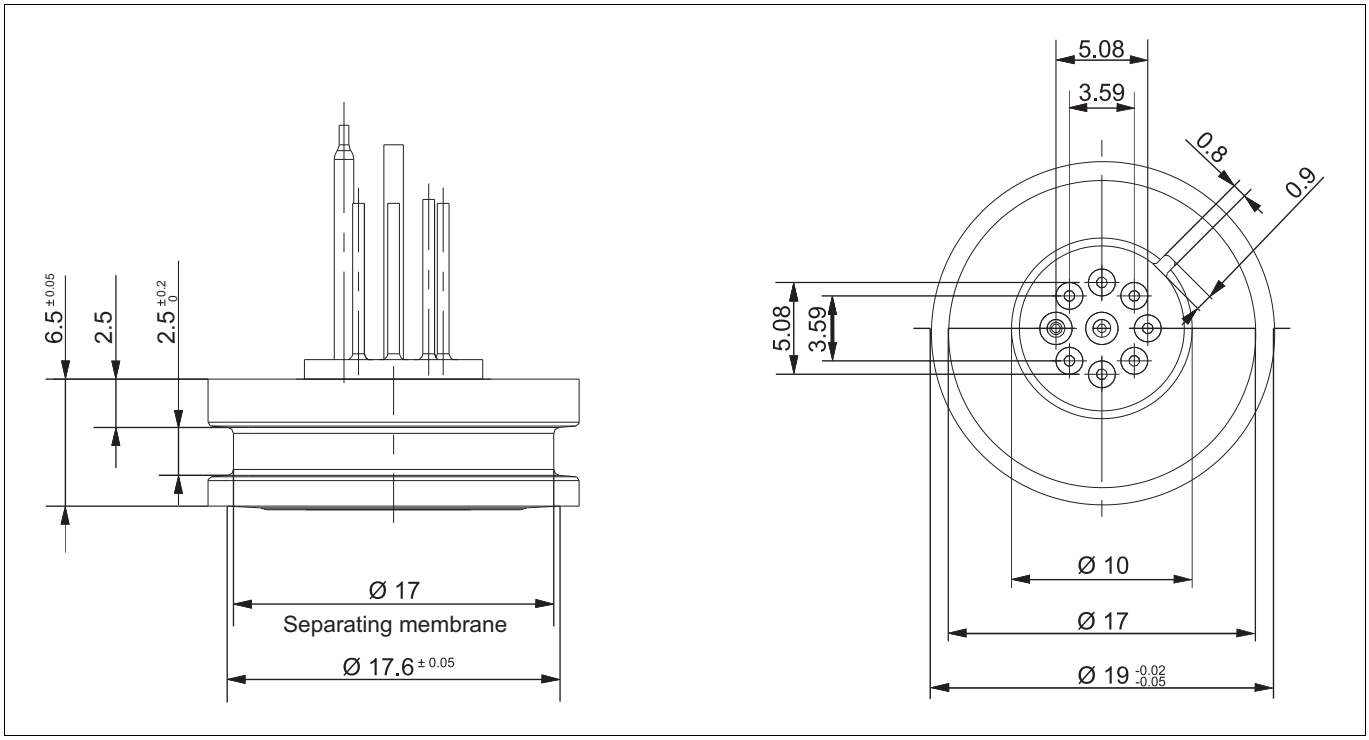
Dimensions

Pressure measuring cell



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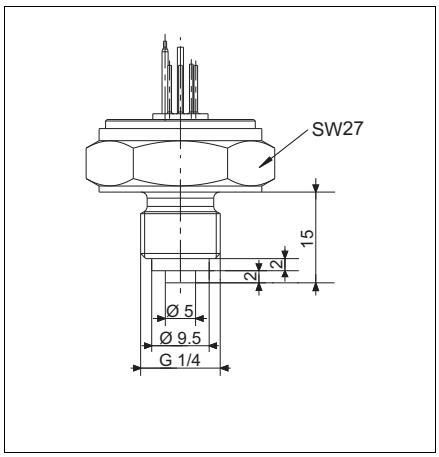
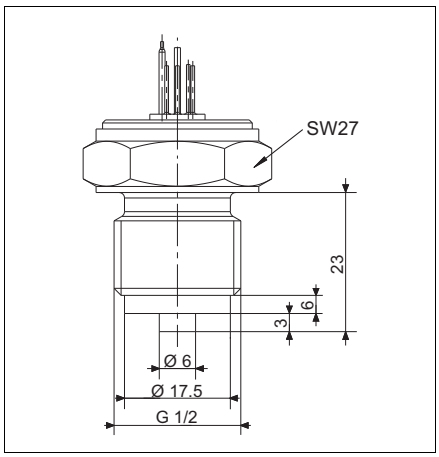
Process connections

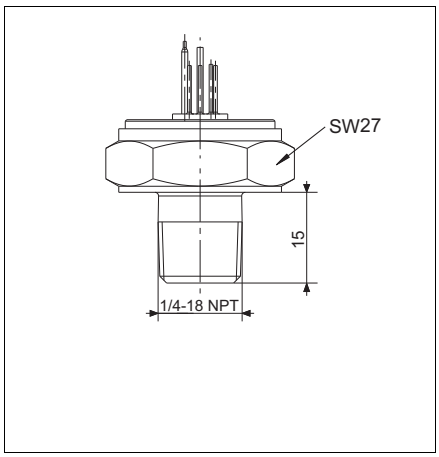
G 1/4 according to DIN EN 837



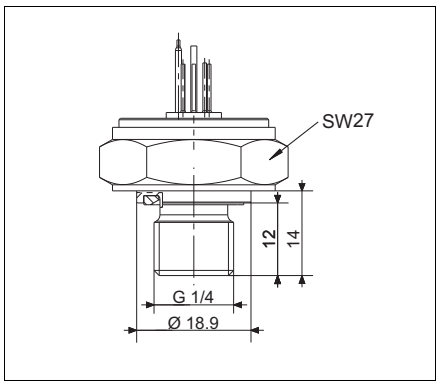
G 1/2 according to DIN EN 837



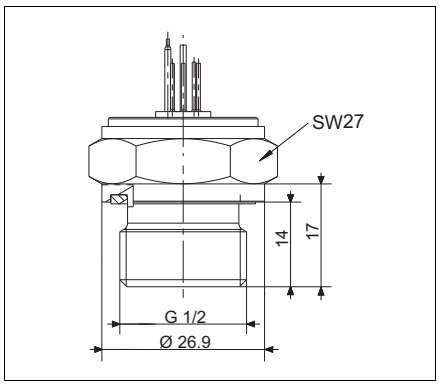
1/4-18 NPT DIN EN 837



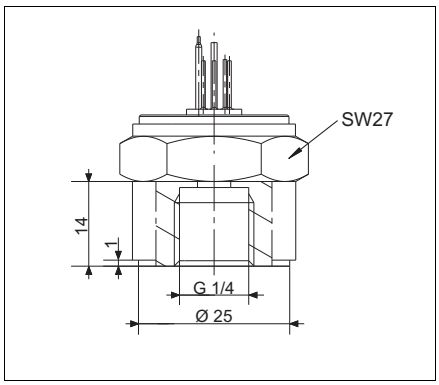
G 1/4 according to DIN EN 3852-11



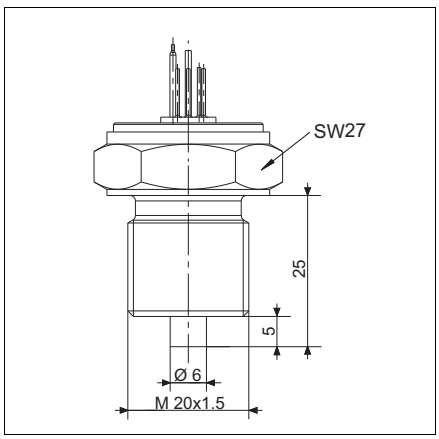
G 1/2 according to DIN EN 3852-11



G 1/4 internal according to DIN EN ISO 228



M20 x 1.5 with pin



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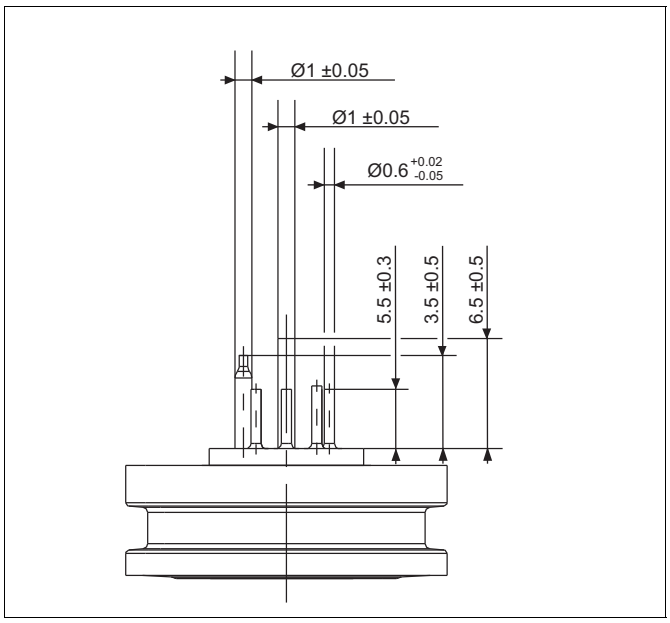
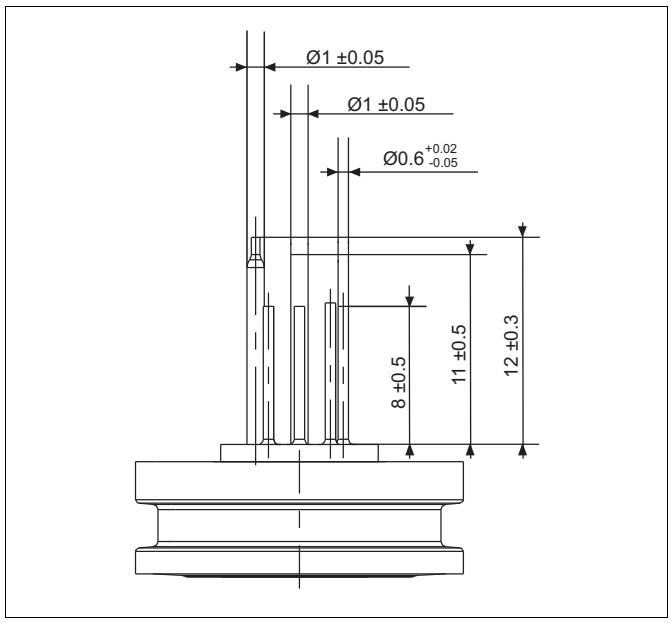
Connection elements

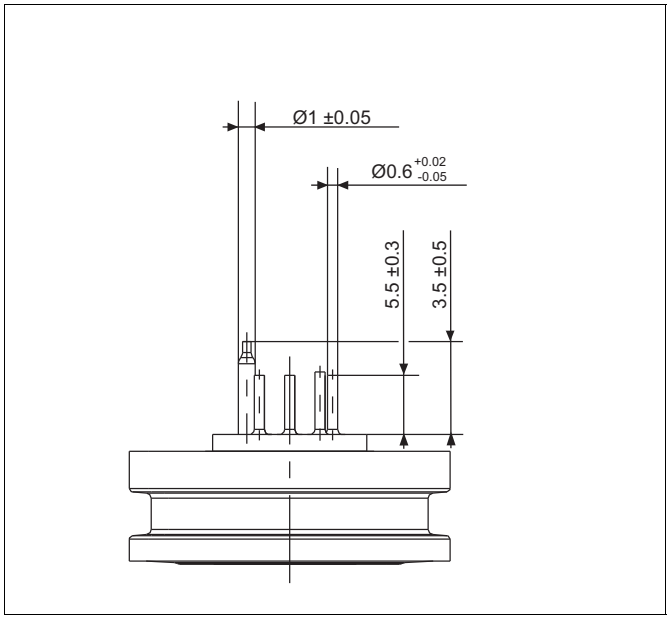
Relative pressure – short pin



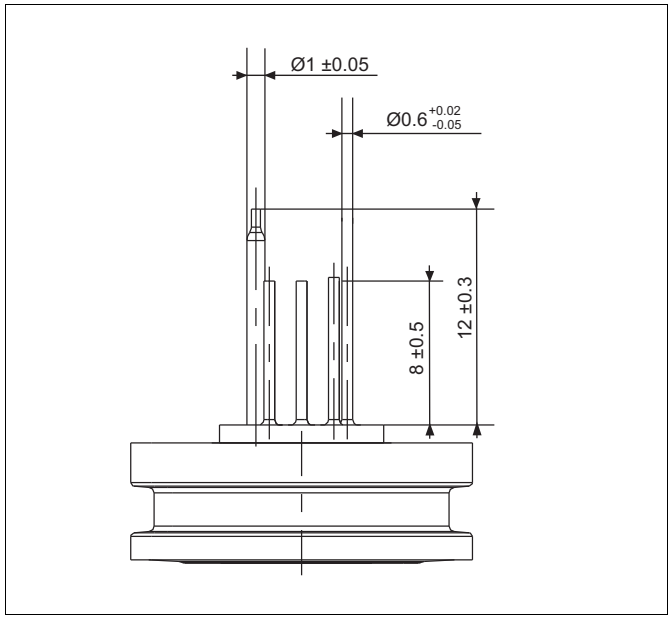
Relative pressure – long pin



Absolute pressure – short pin



Absolute pressure – long pin



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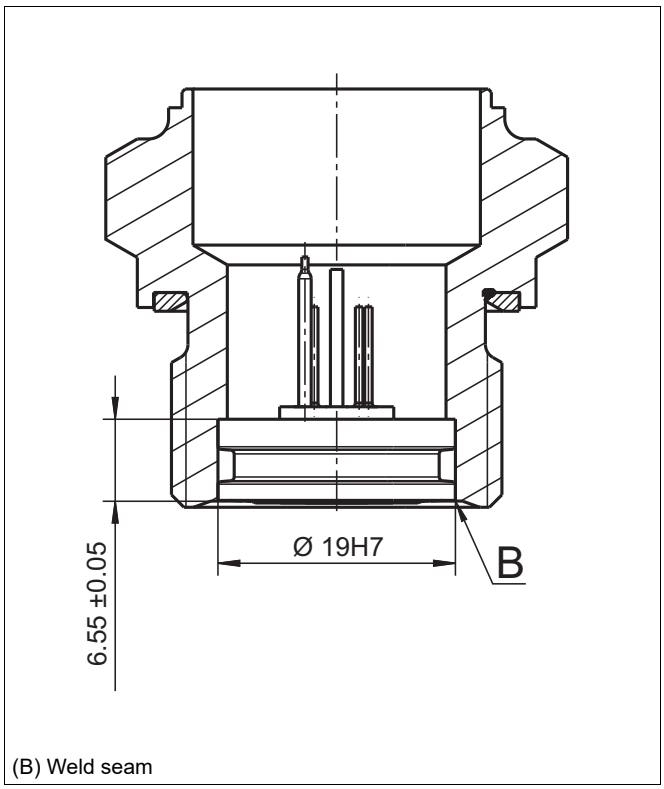
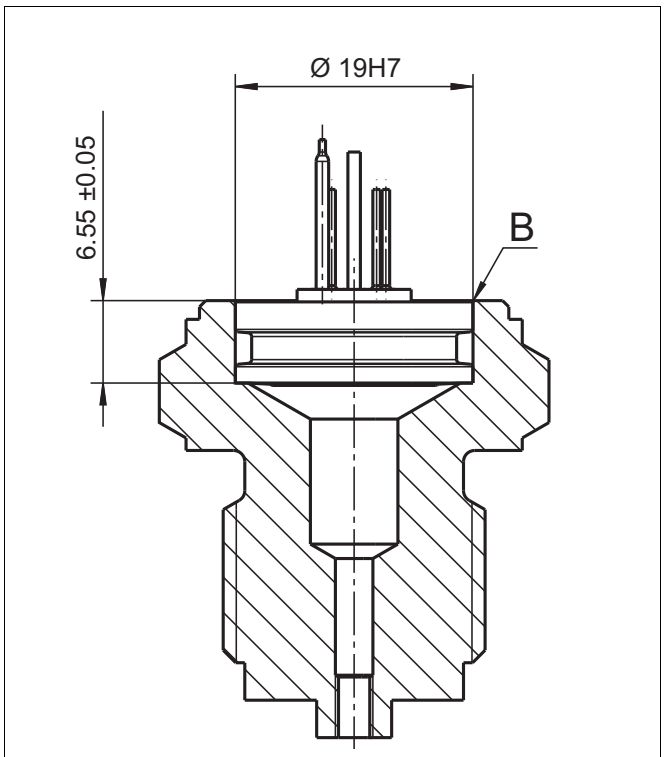
Installation examples

Front-flush



(B) Weld seam

Not front-flush



(B) Weld seam

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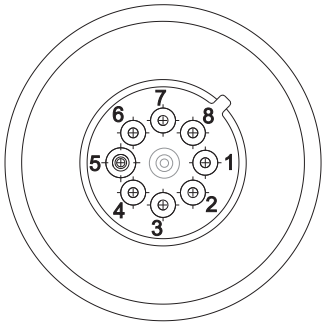
Connection elements

The connection elements in the data sheet provide information on product selection.

Terminal assignment

Pin

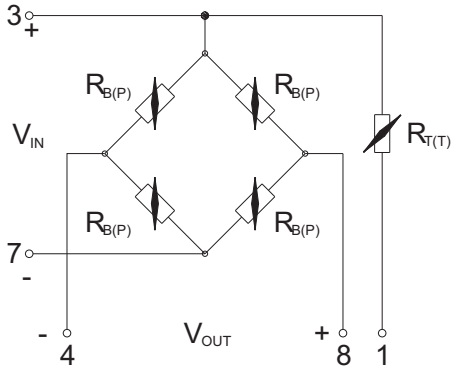
Designation	Description	Assignment
Analog output	-PTC	1
	nc	2
	+PTC/+V	3
	-S	4
	Filling tube	5
	nc	6
	-V	7
	+S	8



Pressure measuring cell (top view)

Connection examples

Connection diagram



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Order details

	(1)	**Basic type**
405115		JUMO CEROS S15 B – Analog pressure measuring cell
	(2)	**Basic type extension**
000		None
999		Special version
	(3)	**Input**
414		0 to 100 mbar relative pressure
430		0 to 350 mbar relative pressure
454		0 bar to 1 bar relative pressure
456		0 bar to 2.5 bar relative pressure
431		0 bar to 5 bar relative pressure
433		0 bar to 0.35 bar relative pressure
459		0 bar to 10 bar relative pressure
432		0 bar to 30 bar relative pressure
464		0 bar to 100 bar relative pressure
488		0 to 1 bar absolute pressure
490		0 to 2.5 bar absolute pressure
500		0 to 5 bar absolute pressure
493		0 to 10 bar absolute pressure
502		0 to 0.35 bar absolute pressure
503		0 to 30 bar absolute pressure
507		0 to 100 bar absolute pressure
	(4)	**Measuring cell**
210		Measuring cell for welding in
211		Measuring cell with O-ring, EPDM
212		Measuring cell with O-ring, FPM
213		Measuring cell with O-ring, VMQ
	(5)	**Process connection**
000		No process connection
502		G 1/4 according to DIN EN 837
504		G 1/2 according to DIN EN 837
511		1/4-18 NPT DIN EN 837
521		G 1/4 according to DIN EN 3852-11
523		G 1/2 according to DIN EN 3852-11
567		G 1/4 internal according to DIN EN ISO 228
583		M20 x 1.5 with pin

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	(6)	Electrical connection
48		Short pin (3.5 mm)
49		Long pin (8 mm)
	(7)	**Extra codes**
000		Without extra code
374		Inspection certificate 3.1 DIN EN 10204 material
624		Oil and grease free
870		Inspection certificate 3.1 DIN EN 10204 surface roughness

	(1)		(2)		(3)		(4)		(5)		(6)		(7)
Order code		/		-		-		-		-		/	
Order example	405115	/	000	-	454	-	210	-	502	-	49	/	000

Further information and downloads

qr-405115-en.jumo.info