Overview

The SITRANS P200 pressure transmitter measures the gauge and absolute pressure of liquids, gases and vapors.

- With ceramic measuring cell
- Gauge and absolute measuring ranges 1 to 60 bar (15 to 1000 psi)
- For general applications

Benefits

- High measurement accuracy
- Rugged stainless steel enclosure
- High overload withstand capability
- For corrosive and non-corrosive media
- For measuring the pressure of liquids, gases and vapors
- Compact design

Application

The SITRANS P200 pressure transmitter for gauge and absolute pressure is used in the following industrial areas:

- Mechanical engineering
- Shipbuilding
- Power engineering
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug to EN 175301-803-A (IP65), an M12 device plug (IP67), a cable (IP67) or a Quickon cable quick screw connection (IP67). The output signal is between 4 and 20 mA or 0 and 10 V

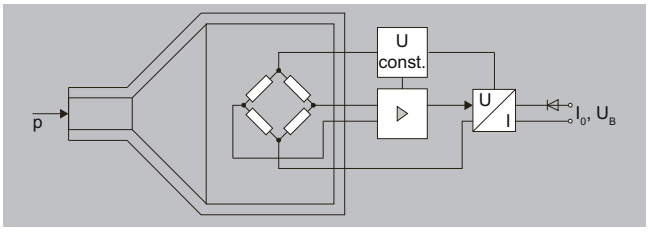
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug fulfilling EN 175301-803-A (IP65) or an M12 device plug (IP67). The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge and absolute pressure of liquids, gases and vapors.

Mode of operation



SITRANS P200 pressure transmitters (7MF1565-...), functional diagram

The ceramic measuring cell has a thick-film resistance bridge, to which the operating pressure p is transmitted through a ceramic diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Selection and ordering data

SITRANS P200 pressure transmitter, for pressure and absolute pressure for general applications								Article No. 7MF1565-										Order code		
								●	●	●	●	●	-	●	●	●	●		●	●	●
Typical characteristic curve deviation 0.25 %, material of wetted parts: Ceramic and stainless steel + gasket material Material of non-wetted parts: Stainless steel																				
Click the article number for online configuration in the PIA Life Cycle Portal.																				
Measuring range		**Minimum overload limit**		**Maximum overload limit**		**Burst pressure**														
For gauge pressure																				
0 ... 1 bar	(0 ... 14.5 psi)	-1 bar	(-14.5 psi)	2.5 bar	(36.26 psi)	> 2.5 bar	(> 36.3 psi)	3	B	A										
0 ... 1.6 bar	(0 ... 23.2 psi)	-1 bar	(-14.5 psi)	4 bar	(58.02 psi)	> 4 bar	(> 58.0 psi)	3	B	B										
0 ... 2.5 bar	(0 ... 36.3 psi)	-1 bar	(-14.5 psi)	6.25 bar	(90.65 psi)	> 6.25 bar	(> 90.7 psi)	3	B	D										
0 ... 4 bar	(0 ... 58.0 psi)	-1 bar	(-14.5 psi)	10 bar	(145 psi)	> 10 bar	(> 145 psi)	3	B	E										
0 ... 6 bar	(0 ... 87.0 psi)	-1 bar	(-14.5 psi)	15 bar	(217 psi)	> 15 bar	(> 217 psi)	3	B	G										
0 ... 10 bar	(0 ... 145 psi)	-1 bar	(-14.5 psi)	25 bar	(362 psi)	> 25 bar	(> 362 psi)	3	C	A										
0 ... 16 bar	(0 ... 232 psi)	-1 bar	(-14.5 psi)	40 bar	(580 psi)	> 40 bar	(> 580 psi)	3	C	B										
0 ... 25 bar	(0 ... 363 psi)	-1 bar	(-14.5 psi)	62.5 bar	(906 psi)	> 62.5 bar	(> 906 psi)	3	C	D										
0 ... 40 bar	(0 ... 580 psi)	-1 bar	(-14.5 psi)	100 bar	(1450 psi)	> 100 bar	(> 1450 psi)	3	C	E										
0 ... 60 bar	(0 ... 870 psi)	-1 bar	(-14.5 psi)	150 bar	(2175 psi)	> 150 bar	(> 2175 psi)	3	C	G										
Other version; Add order code and plain text: Measuring range: ... to ... bar (psi)								9	A	A								H	1	Y
For absolute pressure																				
0 ... 0.6 bar a	(0 ... 8.7 psi a)	0 bar a	(0 psi a)	2.5 bar a	(36.26 psi a)	> 2.5 bar a	(> 36.3 psi a)	5	A	G										
0 ... 1 bar a	(0 ... 14.5 psi a)	0 bar a	(0 psi a)	2.5 bar a	(36.26 psi a)	> 2.5 bar a	(> 36.3 psi a)	5	B	A										
0 ... 1.6 bar a	(0 ... 23.2 psi a)	0 bar a	(0 psi a)	4 bar a	(58.02 psi a)	> 4 bar a	(> 58.0 psi a)	5	B	B										
0 ... 2.5 bar a	(0 ... 36.3 psi a)	0 bar a	(0 psi a)	6.25 bar a	(90.65 psi a)	> 6.25 bar a	(> 90.7 psi a)	5	B	D										
0 ... 4 bar a	(0 ... 58.0 psi a)	0 bar a	(0 psi a)	10 bar a	(145 psi a)	> 10 bar a	(> 145 psi a)	5	B	E										
0 ... 6 bar a	(0 ... 87.0 psi a)	0 bar a	(0 psi a)	15 bar a	(217 psi a)	> 15 bar a	(> 217 psi a)	5	B	G										
0 ... 10 bar a	(0 ... 145 psi)	0 bar a	(0 psi a)	25 bar a	(362 psi a)	> 25 bar a	(> 362 psi a)	5	C	A										
0 ... 16 bar a	(0 ... 232 psi)	0 bar a	(0 psi a)	40 bar a	(580 psi a)	> 40 bar a	(> 580 psi a)	5	C	B										
Other version; Add order code and plain text: Measuring range: ... to ... mbar a (psi a)								9	A	A								H	2	Y
Measuring ranges for gauge pressure																				
	0 ... 15 psi		-14.5 psi		35 psi		> 35 psi	4	B	B										
	3 ... 15 psi		-14.5 psi		35 psi		> 35 psi	4	B	C										
	0 ... 20 psi		-14.5 psi		50 psi		> 50 psi	4	B	D										
	0 ... 30 psi		-14.5 psi		80 psi		> 80 psi	4	B	E										
	0 ... 60 psi		-14.5 psi		140 psi		> 140 psi	4	B	F										
	0 ... 100 psi		-14.5 psi		200 psi		> 200 psi	4	B	G										
	0 ... 150 psi		-14.5 psi		350 psi		> 350 psi	4	C	A										
	0 ... 200 psi		-14.5 psi		550 psi		> 550 psi	4	C	B										
	0 ... 300 psi		-14.5 psi		800 psi		> 800 psi	4	C	D										
	0 ... 500 psi		-14.5 psi		1 400 psi		> 1400 psi	4	C	E										
	0 ... 750 psi		-14.5 psi		2 000 psi		> 2 000 psi	4	C	F										
	0 ... 1 000 psi		-14.5 psi		2 000 psi		> 2 000 psi	4	C	G										
Other version; Add order code and plain text: Measuring range: ... to ... psi								9	A	A								H	1	Y
Measuring ranges for absolute pressure																				
	0 ... 10 psi a		0 psi a		35 psi a		> 35 psi a	6	A	G										
	0 ... 15 psi a		0 psi a		35 psi a		> 35 psi a	6	B	A										
	0 ... 20 psi a		0 psi a		50 psi a		> 50 psi a	6	B	B										
	0 ... 30 psi a		0 psi a		80 psi a		> 80 psi a	6	B	D										
	0 ... 60 psi a		0 psi a		140 psi a		> 140 psi a	6	B	E										
	0 ... 100 psi a		0 psi a		200 psi a		> 200 psi a	6	B	G										
	0 ... 150 psi a		0 psi a		350 psi a		> 350 psi a	6	C	A										
	0 ... 200 psi a		0 psi a		550 psi a		> 550 psi a	6	C	B										
	0 ... 300 psi a		0 psi a		800 psi a		> 800 psi a	6	C	C										
Other version; Add order code and plain text: Measuring range: ... to ... psi a								9	A	A								H	2	Y
Output signal																				
4 ... 20 mA; 2-wire system; auxiliary power 7 ... 33 V DC (10 ... 30 V DC for ATEX devices)											0									
0 ... 10 V; 3-wire system; auxiliary power 12 ... 33 V DC											1	0								

Selection and ordering data (continued)

SITRANS P200 pressure transmitter, for pressure and absolute pressure for general applications	Article No. 7MF1565-											Order code		
	●	●	●	●	●	-	●	●	●	●		●	●	●
0 ... 5 V; 3-wire system; auxiliary power 7 ... 33 V DC				2	0									
Ratiometric 10 ... 90%; 3-wire system; auxiliary power 5 V DC ± 10%				3	0									
Explosion protection (only 4 ... 20 mA)														
None					0									
With explosion protection Ex ia IIC T4					1									
Electrical connection														
Plug according to EN 175301-803-A, stuffing box thread M16 (with coupling)							1							
M12 device plug according to IEC 61076-2-101							2							
Connection via permanently installed cable, 2 m (6.6 ft); not for "Intrinsic safety" type of protection					0		3							
Quick-screw cable gland Quickon PG9; not for "Intrinsic safety" type of protection					0		4							
Plug according to EN 175301-803-A, stuffing box thread 1/2"-14 NPT (with coupling)							5							
Plug according to EN 175301-803-A, stuffing box thread PG11 (with coupling)							6							
Permanently installed cable, length 5 m (16.4 ft)					0		7							
Special design							9					N	1	Y
Process connection														
G½" male according to EN 837-1 (½" BSP male): Standard for metric pressure ranges mbar, bar								A						
G½" male and G1/8" female								B						
G¼" male according to EN 837-1 (¼" BSP male)								C						
7/16"-20 UNF male								D						
¼"-18 NPT male: Standard for pressure ranges inH_2O and psi								E						
¼"-18 NPT female								F						
½"-14 NPT male								G						
½"-14 NPT female								H						
7/16"-20 UNF female								J						
M20×1.5 male								P						
G¼" according to EN ISO 1179-2 (formerly DIN 3852 form E)								Q						
G½" according to EN ISO 1179-2 (formerly DIN 3852 form E)								R						
Special design								Z				P	1	Y
Gasket material between sensor and enclosure														
Viton (FPM, standard)									A					
Neoprene (CR)									B					
Perbunan (NBR)									C					
EPDM									D					
Special design									Z			Q	1	Y
Version														
Standard version										1				

Options	Order code
Add **"-Z"** to article number and specify order code.	
Quality inspection certificate (5-point characteristic curve test) according to IEC 62828-2	**C11**
Oxygen version, free of oil and degreased, max. operating pressure 60 bar (870.2 psi), max. medium temperature +85 °C (185 °F)	**E10**
Notice	
Only with Viton gasket material between sensor and enclosure, and not with explosion protection version!	

Technical specifications

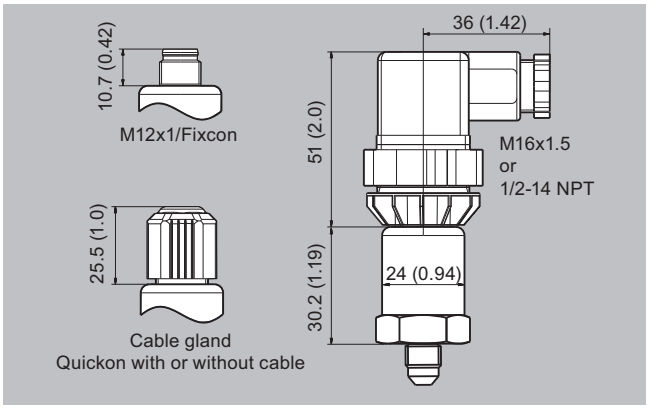
SITRANS P200 for gauge and absolute pressure	
Area of application	
Gauge and absolute pressure measurement	Liquids, gases and vapors
Mode of operation	
Measuring principle	Piezo-resistive measuring cell (ceramic diaphragm)
Measured variable	Gauge and absolute pressure
Input	
Measuring range	
• Gauge pressure	
- Metric	1 ... 60 bar (15 ... 870 psi)
- US measuring range	15 ... 1000 psi
• Absolute pressure	
- Metric	0.6 ... 16 bar a (10 ... 232 psi a)
- US measuring range	10 ... 300 psi a
Output	
Current signal	4 ... 20 mA
• Load	(U_B - 10 V)/0.02 A
• Auxiliary power U_B	7 ... 33 V DC (10 ... 30 V for Ex)
Voltage signal	0 ... 10 V DC
• Load	≥ 10 kΩ
• Auxiliary power U_B	12 ... 33 V DC
• Current consumption	< 7 mA at 10 kΩ
Radiometric output	10 ... 90%
• Load	≥ 10 kΩ
• Auxiliary power U_B	DC 5 V ± 10%
• Current consumption	< 7 mA at 10 Ω
Characteristic curve	Linear rising
Measuring accuracy	
Measurement deviation at limit setting including hysteresis and reproducibility	• Typical: 0.25% of measuring span • Maximum: 0.5% of measuring span
Step response time T_{99}	< 5 ms
Long-term stability	
• Lower range value and measuring span	0.25% of measuring span/year
Effect of ambient temperature	
• Lower range value and measuring span	0.25%/10 K of measuring span
• Influence of power supply	0.005%/V
Operating conditions	
Process temperature with gasket made of:	
• FPM (standard)	-15 ... +125 °C (5 ... 257 °F)
• Neoprene	-35 ... +100 °C (-31 ... +212 °F)
• Perbunan	-20 ... +100 °C (-4 ... +212 °F)
• EPDM	-40 ... +125 °C (-40 ... +257 °F), usable for drinking water
Ambient temperature	-25 ... +85 °C (-13 ... +185 °F)
Storage temperature	-50 ... +100 °C (-58 ... +212 °F)
Degree of protection according to IEC 60529	• IP65 with plug according to EN 175301-803-A • IP67 with M12 device plug • IP67 with cable • IP67 with cable quick screw connection
Electromagnetic compatibility	• According to IEC 61326-1/-2/-3 • According to NAMUR NE21 for ATEX devices only, and with a max. measurement error of ≤ 1%
Structural design	
Weight	Approx. 0.090 kg (0.198 lbs)
Process connections	See dimension drawings

Technical specifications (continued)

SITRANS P200 for gauge and absolute pressure	
Electrical connections	• Plug according to EN 175301-803-A Form A with cable entry M16x1.5 or ½-14 NPT or Pg 11 • Device plug M12 • 2 or 3-wire (0.5 mm²) cable (Ø ± 5.4 mm) • Quickon cable quick screw connection
Material of wetted parts	
• Measuring cell	Al_2O_3 - 96%
• Process connection	Stainless steel, mat. no. 1.4404 (SST 316 L)
• Gasket	• FPM (standard) • Neoprene • Perbunan • EPDM
Material of non-wetted parts	
• Enclosure	Stainless steel, mat. no. 1.4404 (SST 316 L)
• Connector housing	Plastic
• Cable	PVC
Certificates and approvals	
Classification according to pressure equipment directive (PED 2014/68/EU)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)
Lloyd's Register of Shipping (LR)[1]	12/20010
Germanischer Lloyd (GL)[1]	GL19740 11 HH00
American Bureau of Shipping (ABS)[1]	ABS_11_HG 789392_PDA
Bureau Veritas (BV)[1]	BV 271007A0 BV
Det Norske Veritas (DNV)[1]	A 12553
Drinking water approval (ACS)[1]	ACS 15 ACC NY 360
EAC[1]	№ ТС RU C-DE.ГБ05.В.00732 ОС НАНИО «ЦСВЭ»
Underwriters Laboratories (UL)[1]	
• For USA and Canada	UL 20110217 - E34453
• Worldwide	IEC UL DK 21845
Explosion protection	
Intrinsic safety "i" (only with current output)	Ex II 1/2 G Ex ia IIC T4 Ga/Gb Ex II 1/2 D Ex ia IIIC T125 °C Da/Db
EC type-examination certificate	SEV 10 ATEX 0146
Connection to certified intrinsically safe ohmic circuits with maximum values	U_i ≤ DC 30 V; I_i ≤ 100 mA; P_i ≤ 0.75 W
Effective internal inductance and capacity for versions with plugs according to EN 175301-803-A and M12	L_i = 0 nH; C_i = 0 nF

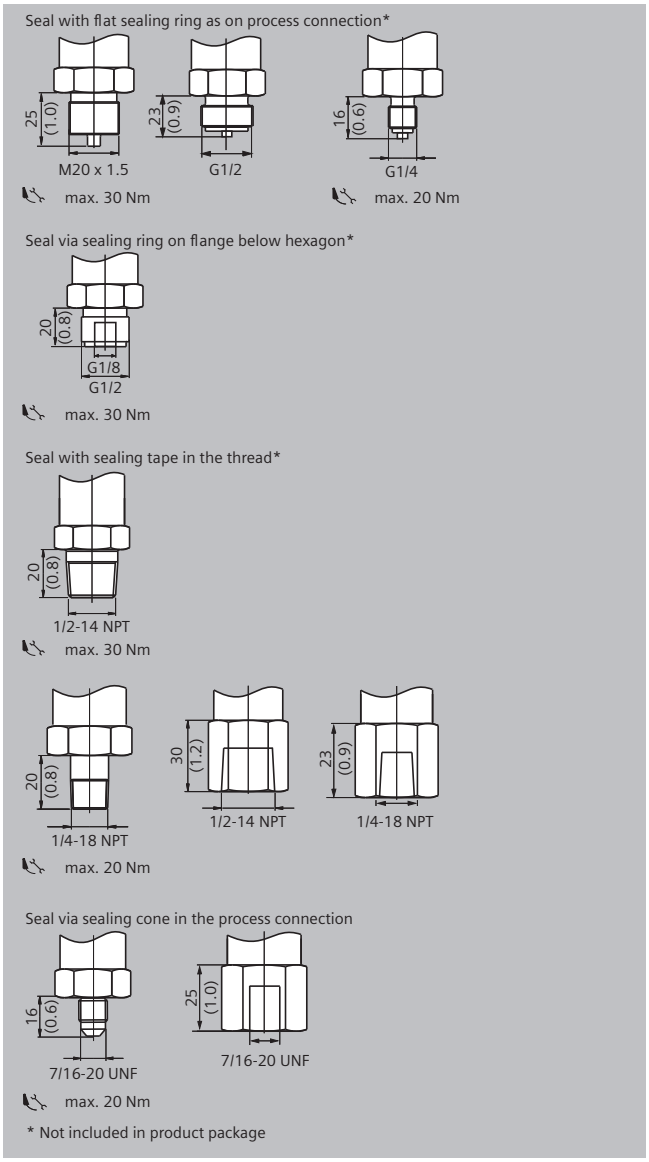
[1] For variants with output signal 0 ... 5 V and radiometric output available soon.

Dimensional drawings



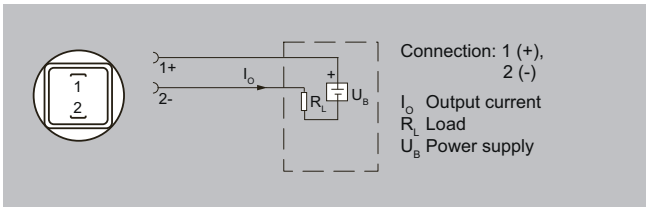
SITRANS P200, electrical connections, dimensions in mm (inch)

Dimensional drawings (continued)

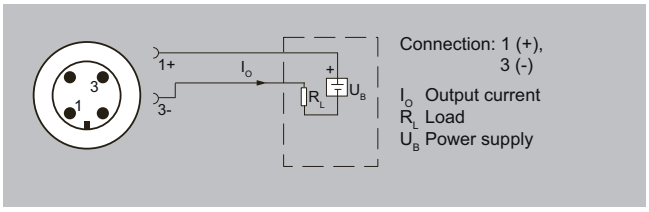


SITRANS P200, process connections, dimensions in mm (inch)

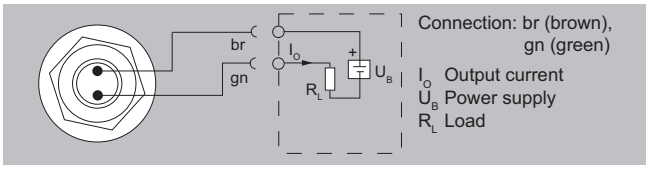
Circuit diagrams



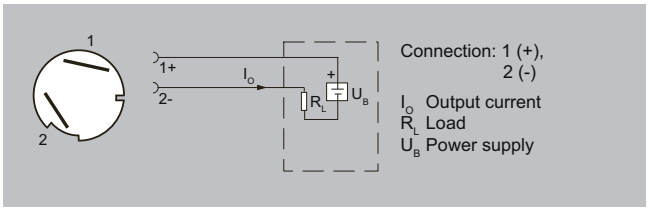
Connection with current output and plug according to EN 175301



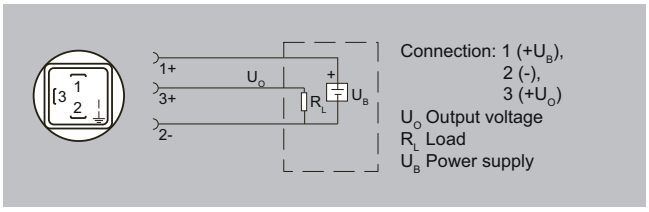
Connection with current output and M12x1 device plug



Connection with current output and cable

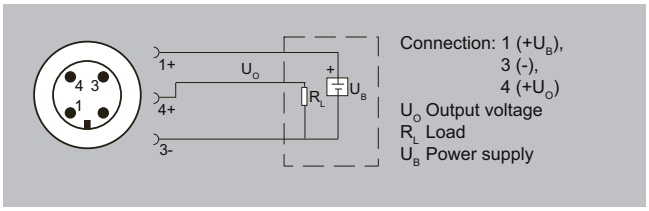


Connection with current output and Quickon cable quick screw connection

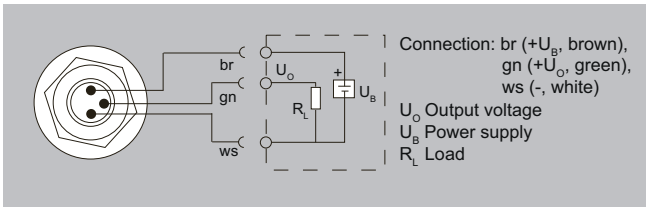


Connection with voltage output, ratiometric output and plug according to EN 175301

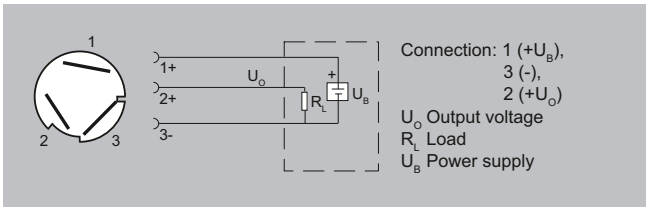
Circuit diagrams (continued)



Connection with voltage output, ratiometric output and M12x1 device plug



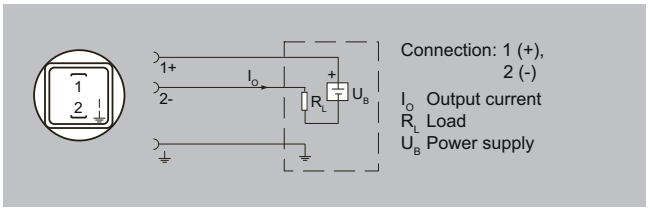
Connection with voltage output, ratiometric output and cable



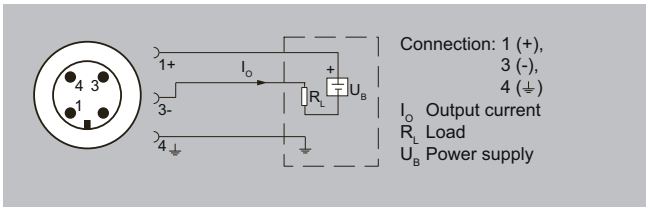
Connection with voltage output, ratiometric output and Quickon fast cable termination

Device design with explosion protection: 4 to 20 mA

The grounding connection is conductively bonded to the transmitter enclosure.



Connection with current output and plug according to EN 175301 (Ex)



Connection with current output and M12x1 (Ex) device plug

Overview

The SITRANS P210 pressure transmitter measures the gauge pressure of liquids, gases and vapors.

- Stainless steel measuring cell
- Measuring ranges 100 to 600 mbar (1.45 to 8.7 psi) relative
- For low-pressure applications

Benefits

- High measurement accuracy
- Rugged stainless steel enclosure
- High overload withstand capability
- For corrosive and non-corrosive media
- For measuring the pressure of liquids, gases and vapors
- Compact design

Application

The SITRANS P210 pressure transmitter for gauge pressure is used in the following industrial areas:

- Mechanical engineering
- Shipbuilding
- Energy development
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug to EN 175301-803-A (IP65), an M12 device plug (IP67), a cable (IP67) or a Quickon cable quick screw connection (IP67). The output signal is between 4 and 20 mA or 0 and 10 V

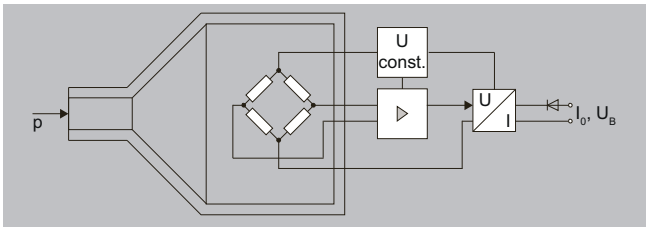
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug fulfilling EN 175301-803-A (IP65) or an M12 device plug (IP67). The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge pressure of liquids and gases as well as the level of liquids.

Mode of operation



SITRANS P210 pressure transmitter (7MF1566-...), functional diagram

The stainless steel measuring cell with silicone oil filling has a thin-film resistance bridge to which the operating pressure p is transmitted through a stainless steel diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Selection and ordering data

SITRANS P210 pressure transmitter for gauge pressure, for low-pressure applications	Article No. 7MF1566-													Order code		
	●	●	●	●	●	-	●	●	●	●				●	●	●
Measurement deviation typ. 0.25% Material of wetted parts: Stainless steel + gasket material Material of non-wetted parts: Stainless steel																
Click the article number for online configuration in the PIA Life Cycle Portal.																
Measuring range / **Minimum overload limit** / **Maximum overload limit** / **Burst pressure**																
For gauge pressure																
0...100 mbar (1.45 psi) / -400 mbar (-5.8 psi) / 400 mbar (5.8 psi) / 1 bar (14.5 psi)	3	A	A													
0...160 mbar (2.32 psi) / -400 mbar (-5.8 psi) / 400 mbar (5.8 psi) / 1 bar (14.5 psi)	3	A	B													
0...250 mbar (3.63 psi) / -800 mbar (-11.6 psi) / 1 000 mbar (14.5 psi) / 2 bar (29.0 psi)	3	A	C													
0...400 mbar (5.8 psi) / -800 mbar (-11.6 psi) / 1 000 mbar (14.5 psi) / 2 bar (29.0 psi)	3	A	D													
0...600 mbar (8.7 psi) / -1 000 mbar (-14.5 psi) / 2 000 mbar (29.0 psi) / 3 bar (43.5 psi)	3	A	G													
Other version; Add order code and plain text: Measuring range: ... to ... mbar (psi)	9	A	A											H	1	Y
Output signal																
4 ... 20 mA; 2-wire system; auxiliary power 7 ... 33 V DC (10 ... 30 V DC for ATEX devices)				0												
0 ... 10 V; 3-wire system; auxiliary power 12 ... 33 V DC				1	0											
0 ... 5 V; 3-wire system; auxiliary power 7 ... 33 V DC				2	0											
Ratiometric 10 ... 90%; 3-wire system; auxiliary power 5 V DC ± 10%				3	0											
Explosion protection (only 4 ... 20 mA)																
None					0											
With explosion protection Ex ia IIC T4					1											
Electrical connection																
Plug according to EN 175301-803-A, stuffing box thread M16 (with coupling)							1									
M12 device plug according to IEC 61076-2-101							2									
Connection via permanently installed cable, 2 m (6.6 ft); not for "Intrinsic safety" type of protection					0		3									
Quick-screw cable gland Quickon PG9; not for "Intrinsic safety" type of protection					0		4									
Plug according to EN 175301-803-A, stuffing box thread 1/2"-14 NPT (with coupling)							5									
Plug according to EN 175301-803-A, stuffing box thread PG11 (with coupling)							6									
Permanently installed cable, length 5 m (16.4 ft)					0		7									
Special design							9							N	1	Y
Process connection																
G½" male according to EN 837-1 (½" BSP male): Standard for metric pressure ranges mbar, bar								A								
G½" male and G1/8" female								B								
G¼" male according to EN 837-1 (¼" BSP male)								C								
7/16"-20 UNF male								D								
¼"-18 NPT male: Standard for pressure ranges inH_2O and psi								E								
¼"-18 NPT female								F								
½"-14 NPT male								G								
½"-14 NPT female								H								
7/16"-20 UNF female								J								
M20×1.5 male								P								
G¼" according to EN ISO 1179-2 (formerly DIN 3852 form E)								Q								
G½" according to EN ISO 1179-2 (formerly DIN 3852 form E)								R								
Special design								Z						P	1	Y
Gasket material between sensor and enclosure																
Viton (FPM, standard)									A							
Neoprene (CR)									B							
Perbunan (NBR)									C							
EPDM									D							
Special design									Z					Q	1	Y
Version																
Standard version											1					

Options	Order code
Add **"-Z"** to article number and specify order code.	
Quality inspection certificate (5-point characteristic curve test) according to IEC 62828-2	**C11**

Technical specifications

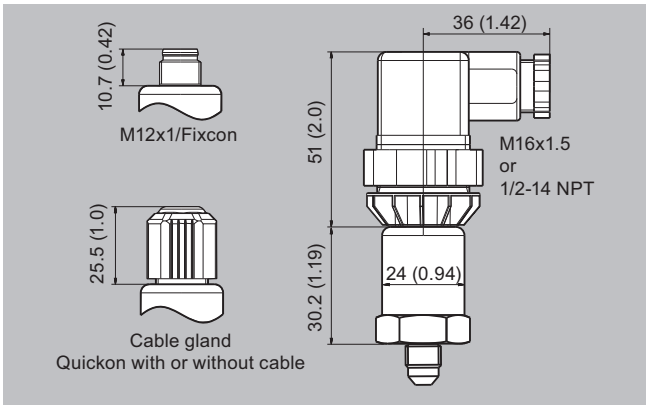
SITRANS P210 for gauge pressure	
Area of application	
Gauge pressure measurement	Liquids, gases and vapors
Mode of operation	
Measuring principle	Piezoresistive measuring cell (stainless steel diaphragm)
Measured variable	Gauge pressure
Input	
Measuring range	
• Gauge pressure	100 ... 600 mbar (1.45 ... 8.7 psi)
Output	
Current signal	4 ... 20 mA
• Load	(U_B - 10 V)/0.02 A
• Auxiliary power U_B	7 ... 33 V DC (10 ... 30 V for Ex)
Voltage signal	0 ... 10 V DC
• Load	≥ 10 kΩ
• Auxiliary power U_B	12 ... 33 V DC
• Current consumption	< 7 mA at 10 kΩ
Radiometric output	10 ... 90%
• Load	≥ 10 kΩ
• Auxiliary power U_B	DC 5 V ± 10%
• Current consumption	< 7 mA at 10 kΩ
Characteristic curve	Linear rising
Measuring accuracy	
Measurement deviation at limit setting including hysteresis and reproducibility	• Typical: 0.25% of measuring span • Maximum: 0.5% of measuring span
Step response time T_{99}	< 5 ms
Long-term stability	
• Lower range value and measuring span	0.25% of measuring span/year
Effect of ambient temperature	
• Lower range value and measuring span	• 0.25%/10 K of measuring span • 0.5%/10 K of measuring span for a measuring range 100 ... 400 mbar (40 ... 240 inH_2O)
• Influence of power supply	0.005%/V
Operating conditions	
Process temperature with gasket made of:	
• FPM (standard)	-15 ... +125 °C (5 ... 257 °F)
• Neoprene	-35 ... +100 °C (-31 ... +212 °F)
• Perbunan	-20 ... +100 °C (-4 ... +212 °F)
• EPDM	-40 ... +125 °C (-40 ... +257 °F), usable for drinking water
Ambient temperature	-25 ... +85 °C (-13 ... +185 °F)
Storage temperature	-50 ... +100 °C (-58 ... +212 °F)
Type of protection according to IEC 60529	• IP65 with plug according to EN 175301-803-A • IP67 with M12 device plug • IP67 with cable • IP67 with cable quick screw connection
Electromagnetic compatibility	• According to IEC 61326-1/-2/-3 • According to NAMUR NE21 for ATEX devices only, and with a max. measurement error of ≤ 1%
Mounting position	Vertical, facing up
Structural design	
Weight	Approx. 0.090 kg (0.198 lbs)
Process connections	See dimension drawings

Technical specifications (continued)

SITRANS P210 for gauge pressure	
Electrical connections	• Plug according to EN 175301-803-A Form A with cable entry M16x1.5 or ½-14 NPT or Pg 11 • Device plug M12 • 2 or 3-wire (0.5 mm²) cable (Ø ± 5.4 mm) • Quickon cable quick screw connection
Material of wetted parts	
• Measuring cell	Stainless steel, mat. no. 1.4435
• Process connection	Stainless steel, mat. no. 1.4404 (SST 316 L)
• Gasket	• FPM (standard) • Neoprene • Perbunan • EPDM
Material of non-wetted parts	
• Enclosure	Stainless steel, mat. no. 1.4404 (SST 316 L)
• Connector housing	Plastic
• Cable	PVC
Certificates and approvals	
Classification according to pressure equipment directive (PED 2014/68/EU)	For gases of fluid group 1 and liquids of fluid group 1; meets requirements as per article 4, paragraph 3 (sound engineering practice)
Lloyd's Register of Shipping (LR)[1)]	12/20010
Germanischer Lloyd (GL)[1)]	GL19740 11 HH00
American Bureau of Shipping (ABS)[1)]	ABS_11_HG 789392_PDA
Bureau Veritas (BV)[1)]	BV 271007A0 BV
Det Norske Veritas (DNV)[1)]	A 12553
Drinking water approval (ACS)[1)]	ACS 15 ACC NY 360
EAC[1)]	№ ТС RU C-DE.ГБ05.В.00732 ОС НАНИО «ЦСВЭ»
Underwriters Laboratories (UL)[1)]	
• For the USA and Canada	UL 20110217 - E34453
• Worldwide	IEC UL DK 21845
Explosion protection	
Intrinsic safety "i" (only with current output)	Ex II 1/2 G Ex ia IIC T4 Ga/Gb Ex II 1/2 D Ex ia IIIC T125 °C Da/Db
EC type-examination certificate	SEV 10 ATEX 0146
Connection to certified intrinsically safe ohmic circuits with maximum values	U_i ≤ DC 30 V; I_i ≤ 100 mA; P_i ≤ 0.75 W
Effective internal inductance and capacity for versions with plugs according to EN 175301-803-A and M12	L_i = 0 nH; C_i = 0 nF

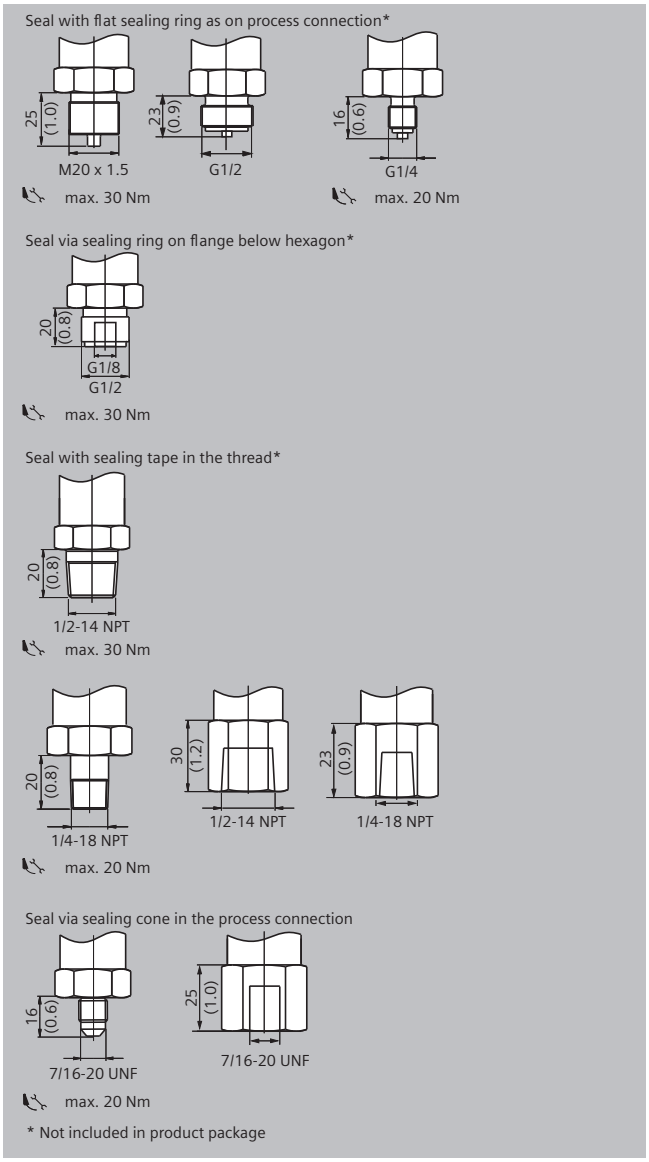
1) For variants with output signal 0 ... 5 V and radiometric output available soon.

Dimensional drawings



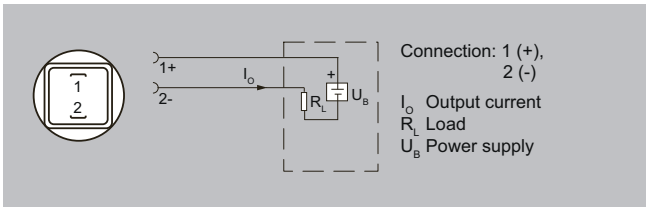
SITRANS P210, electrical connections, dimensions in mm (inch)

Dimensional drawings (continued)

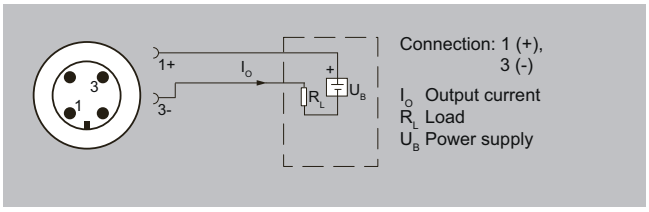


SITRANS P210, process connections, dimensions in mm (inch)

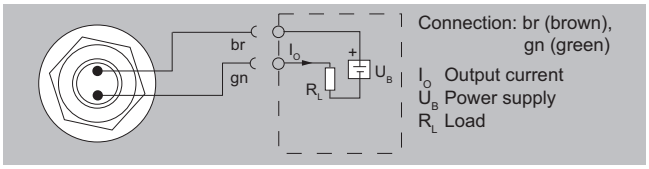
Circuit diagrams



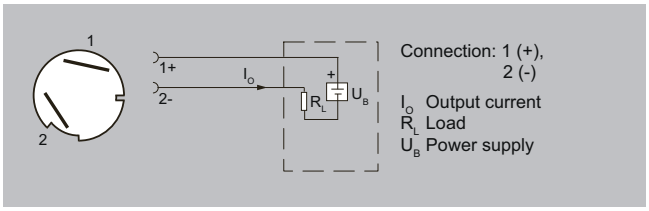
Connection with current output and plug according to EN 175301



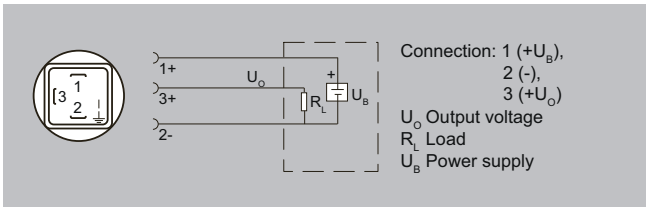
Connection with current output and M12x1 device plug



Connection with current output and cable

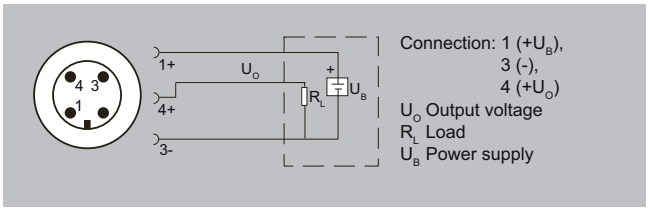


Connection with current output and Quickon cable quick screw connection

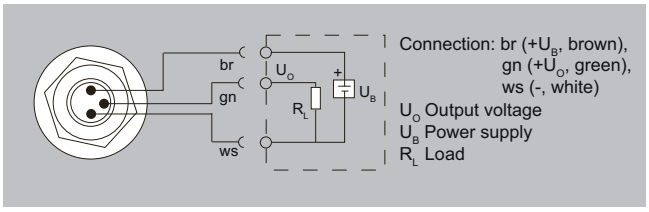


Connection with voltage output, ratiometric output and plug according to EN 175301

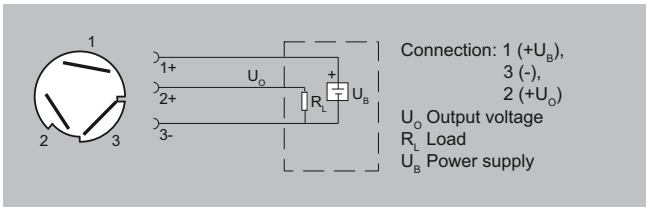
Circuit diagrams (continued)



Connection with voltage output, ratiometric output and M12x1 device plug



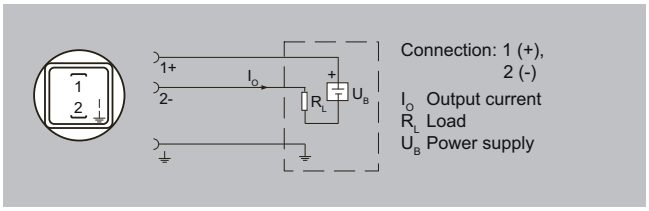
Connection with voltage output, ratiometric output and cable



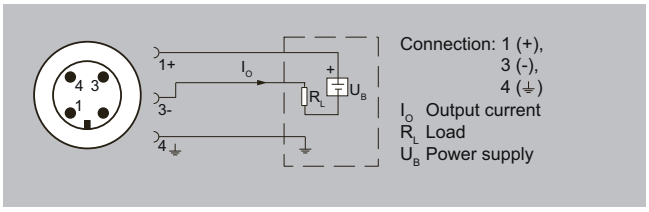
Connection with voltage output, ratiometric output and Quickon fast cable termination

Device design with explosion protection: 4 to 20 mA

The grounding connection is conductively bonded to the transmitter enclosure.



Connection with current output and plug according to EN 175301 (Ex)



Connection with current output and M12x1 (Ex) device plug

Overview

The SITRANS P220 pressure transmitter measures the gauge pressure of liquids, gases and vapors.

- Stainless steel measuring cell, fully welded
- Measuring ranges 2.5 to 1 000 bar (36.3 to 14 500 psi) relative
- For high-pressure applications and refrigeration technology

Benefits

- High measurement accuracy
- Rugged stainless steel enclosure
- High overload withstand capability
- For corrosive and non-corrosive media
- For measuring the pressure of liquids, gases and vapors
- Compact design
- Gasket-less

Application

The SITRANS P220 pressure transmitter for gauge pressure is used in the following industrial areas:

- Mechanical engineering
- Shipbuilding
- Energy development
- Chemical industry
- Water supply

Design

Device structure without explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug to EN 175301-803-A (IP65), an M12 device plug (IP67), a cable (IP67) or a Quickon cable quick screw connection (IP67). The output signal is between 4 and 20 mA or 0 and 10 V

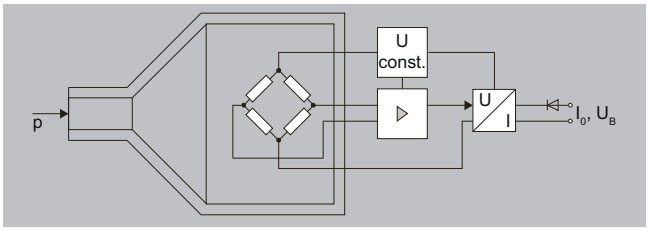
Device structure with explosion protection

The pressure transmitter consists of a piezoresistive measuring cell with a diaphragm, installed in a stainless steel enclosure. It can be connected electrically with a device plug fulfilling EN 175301-803-A (IP65) or an M12 device plug (IP67). The output signal is between 4 and 20 mA.

Function

The pressure transmitter measures the gauge pressure of liquids and gases as well as the level of liquids.

Mode of operation



SITRANS P220 pressure transmitters (7MF1567-...), functional diagram

The stainless steel measuring cell has a thick-film resistance bridge to which the operating pressure p is transmitted through a stainless steel diaphragm.

The voltage output from the measuring cell is converted by an amplifier into an output current of 4 to 20 mA or an output voltage of 0 to 10 V DC.

The output current and voltage are linearly proportional to the input pressure.

Selection and ordering data

SITRANS P220 pressure transmitter for gauge pressure, for high-pressure and cold applications, fully-welded version								Article No. 7MF1567-											Order code		
								●	●	●	●	●	-	●	●	A	●		●	●	●
Measurement deviation typ. 0.25% Material of wetted parts: Stainless steel Material of non-wetted parts: Stainless steel																					
Click the article number for online configuration in the PIA Life Cycle Portal.																					
Measuring range		**Minimum overload limit**		**Maximum overload limit**		**Burst pressure**															
For gauge pressure																					
0 ... 2.5 bar	(0 ... 36.3 psi)	-1 bar	(-14.5 psi)	6.25 bar	(90.7 psi)	25 bar	(363 psi)	3	B	D											
0 ... 4 bar	(0 ... 58 psi)	-1 bar	(-14.5 psi)	10 bar	(145 psi)	40 bar	(580 psi)	3	B	E											
0 ... 6 bar	(0 ... 87 psi)	-1 bar	(-14.5 psi)	15 bar	(217 psi)	60 bar	(870 psi)	3	B	G											
0 ... 10 bar	(0 ... 145 psi)	-1 bar	(-14.5 psi)	25 bar	(362 psi)	60 bar	(870 psi)	3	C	A											
0 ... 16 bar	(0 ... 232 psi)	-1 bar	(-14.5 psi)	40 bar	(580 psi)	96 bar	(1 392 psi)	3	C	B											
0 ... 25 bar	(0 ... 363 psi)	-1 bar	(-14.5 psi)	62.5 bar	(906 psi)	150 bar	(2 176 psi)	3	C	D											
0 ... 40 bar	(0 ... 580 psi)	-1 bar	(-14.5 psi)	100 bar	(1 450 psi)	240 bar	(3 481 psi)	3	C	E											
0 ... 60 bar	(0 ... 870 psi)	-1 bar	(-14.5 psi)	150 bar	(2 175 psi)	360 bar	(5 221 psi)	3	C	G											
0 ... 100 bar	(0 ... 1450 psi)	-1 bar	(-14.5 psi)	250 bar	(3 625 psi)	600 bar	(8 702 psi)	3	D	A											
0 ... 160 bar	(0 ... 2320 psi)	-1 bar	(-14.5 psi)	400 bar	(5 801 psi)	960 bar	(13 924 psi)	3	D	B											
0 ... 250 bar	(0 ... 3625 psi)	-1 bar	(-14.5 psi)	625 bar	(9 064 psi)	1 500 bar	(21 756 psi)	3	D	D											
0 ... 400 bar	(0 ... 5801 psi)	-1 bar	(-14.5 psi)	1 000 bar	(14 503 psi)	2 400 bar	(34 809 psi)	3	D	E											
0 ... 600 bar	(0 ... 8702 psi)	-1 bar	(-14.5 psi)	1 500 bar	(21 755 psi)	3 600 bar	(52 200 psi)	3	D	G											
0 ... 1000 bar	(0 ... 14500 psi)	-1 bar	(-14.5 psi)	1 500 bar	(21 755 psi)	5 000 bar	(72 520 psi)	3	E	A											
Other version; Add order code and plain text: Measuring range: ... to ... bar (psi)								9	A	A									H	1	Y
Measuring ranges for gauge pressure																					
	0 ... 30 psi		-14.5 psi		75 psi		360 psi	4	B	E	1)										
	0 ... 60 psi		-14.5 psi		150 psi		580 psi	4	B	F	1)										
	0 ... 100 psi		-14.5 psi		250 psi		580 psi	4	B	G	1)										
	0 ... 150 psi		-14.5 psi		375 psi		870 psi	4	C	A	1)										
	0 ... 200 psi		-14.5 psi		500 psi		1 390 psi	4	C	B	1)										
	0 ... 300 psi		-14.5 psi		750 psi		2 170 psi	4	C	D	1)										
	0 ... 500 psi		-14.5 psi		1 250 psi		3 481 psi	4	C	E	1)										
	0 ... 750 psi		-14.5 psi		1 875 psi		5 220 psi	4	C	F	1)										
	0 ... 1 000 psi		-14.5 psi		2 500 psi		5 220 psi	4	C	G	1)										
	0 ... 1 500 psi		-14.5 psi		3 750 psi		8 700 psi	4	D	A	1)										
	0 ... 2 000 psi		-14.5 psi		5 000 psi		13 920 psi	4	D	B	1)										
	0 ... 3 000 psi		-14.5 psi		7 500 psi		21 750 psi	4	D	D	1)										
	0 ... 5 000 psi		-14.5 psi		12 500 psi		34 800 psi	4	D	E	1)										
	0 ... 6 000 psi		-14.5 psi		15 000 psi		34 800 psi	4	D	F	1)										
	0 ... 8 700 psi		-14.5 psi		21 755 psi		52 200 psi	4	D	G	1)										
	0 ... 14 500 psi		-14.5 psi		21 755 psi		72 520 psi	4	E	A											
Other version; Add order code and plain text: Measuring range: ... to ... psi								9	A	A									H	1	Y
Output signal																					
4 ... 20 mA; 2-wire system, auxiliary power 7 ... 33 V DC (10 ... 30 V DC for ATEX devices)[1]											0										
0 ... 10 V; 3-wire system; auxiliary power 12 ... 33 V DC											1	0									
0 ... 5 V; 3-wire system; auxiliary power 7 ... 33 V DC											2	0									
Ratiometric 10 ... 90%; 3-wire system; auxiliary power 5 V DC ± 10%											3	0									
Explosion protection (only 4 ... 20 mA)																					
None												0									
With explosion protection Ex ia IIC T4[1]												1									
Electrical connection																					
Plug according to EN 175301-803-A, stuffing box thread M16 (with coupling)[1]														1							
M12 device plug according to IEC 61076-2-101														2							
Connection via permanently installed cable, 2 m (6.6 ft); not for "Intrinsic safety" type of protection												0		3							
Quick-screw cable gland Quickon PG9; not for "Intrinsic safety" type of protection												0		4							
Plug according to EN 175301-803-A, stuffing box thread 1/2"-14 NPT (with coupling)[1]														5							
Plug according to EN 175301-803-A, stuffing box thread PG11 (with coupling)[1]														6							
Permanently installed cable, length 5 m (16.4 ft)												0		7							
Special design														9					N	1	Y

Selection and ordering data (continued)

SITRANS P220 pressure transmitter for gauge pressure, for high-pressure and cold applications, fully-welded version	Article No. 7MF1567-													Order code		
	●	●	●	●	●	-	●	●	A	●				●	●	●
Process connection																
G½" male according to EN 837-1 (½" BSP male) (standard for metric pressure ranges mbar, bar)									A							
G½" male and G1/8" female									B							
G¼" male according to EN 837-1 (¼" BSP male)									C							
7/16"-20 UNF male									D							
¼"-18 NPT male (standard for pressure ranges inH_2O and psi)[1]									E							
¼"-18 NPT female									F							
½"-14 NPT male									G							
½"-14 NPT female									H							
7/16"-20 UNF female									J							
M20×1.5 male									P							
G¼" according to EN ISO 1179-2 (formerly DIN 3852 form E)									Q							
G½" according to EN ISO 1179-2 (formerly DIN 3852 form E)									R							
Special design									Z					P	1	Y
Version																
Standard version[1]										1						

[1] Order code E21 required for complete configurations with CRN and $_cCSA_{us}$ Ex approval.

Options	Order code
Add **"-Z"** to article number and specify order code.	
Quality inspection certificate (5-point characteristic curve test) according to IEC 62828-2 (not possible for measuring ranges > 0 ... 600 bar/0 ... 8 702 psi)	**C11**
Oxygen version, free of oil and degreased (not in combination with explosion protection version!)	**E10**
With CRN and $_cCSA_{us}$ Ex approval (only for measuring ranges 0 ... 30 psi to 0 ... 8 700 psi)	**E21**

Technical specifications

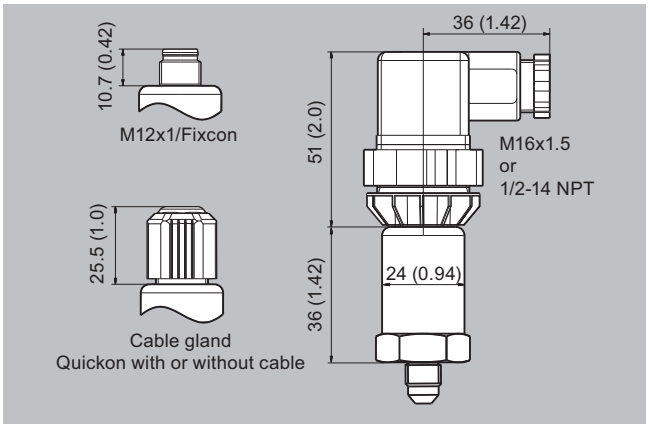
SITRANS P220 for gauge pressure	
Area of application	
Gauge pressure measurement	Liquids, gases and vapors
Mode of operation	
Measuring principle	Piezoresistive measuring cell (stainless steel diaphragm)
Measured variable	Gauge pressure
Input	
Measuring range	
• Gauge pressure	
- Metric	2.5 ... 1 000 bar (36 ... 14 500 psi)
- US measuring range	30 ... 14 500 psi
Output	
Current signal	4 ... 20 mA
• Load	(U_B - 10 V)/0.02 A
• Auxiliary power U_B	7 ... 33 V DC (10 ... 30 V for Ex)
Voltage signal	0 ... 10 V DC
• Load	≥ 10 kΩ
• Auxiliary power U_B	12 ... 33 V DC
• Current consumption	< 7 mA at 10 kΩ
Radiometric output	10 ... 90%
• Load	≥ 10 kΩ
• Auxiliary power U_B	DC 5 V ± 10%
• Current consumption	< 7 mA at 10 kΩ
Characteristic curve	Linear rising
Measuring accuracy	
Measurement deviation at limit setting including hysteresis and reproducibility	• Typical: 0.25% of measuring span • Maximum: 0.5% of measuring span
Step response time T_{99}	< 5 ms
Long-term stability	
• Lower range value and measuring span	0.25% of measuring span/year
Effect of ambient temperature	
• Lower range value and measuring span	0.25%/10 K of measuring span
• Influence of power supply	0.005%/V
Operating conditions	
Process temperature	-40 ... +120 °C (-40 ... +248 °F)
Ambient temperature	-25 ... +85 °C (-13 ... +185 °F)
Storage temperature	-50 ... +100 °C (-58 ... +212 °F)
Degree of protection according to IEC 60529	• IP65 with plug according to EN 175301-803-A • IP67 with M12 device plug • IP67 with cable • IP67 with cable quick screw connection
Electromagnetic compatibility	• According to IEC 61326-1/-2/-3 • According to NAMUR NE21 for ATEX devices only, and with a max. measurement error of ≤ 1%
Structural design	
Weight	Approx. 0.090 kg (0.198 lbs)
Process connections	See dimension drawings
Electrical connections	• Plug according to EN 175301-803-A Form A with cable entry M16x1.5 or ½-14 NPT or PG 11 • Device plug M12 • 2 or 3-wire (0.5 mm²) cable (Ø ± 5.4 mm) • Quickon cable quick screw connection
Material of wetted parts	
• Measuring cell	Stainless steel, mat. no. 1.4016

Technical specifications (continued)

SITRANS P220 for gauge pressure	
• Process connection	Stainless steel, mat. no. 1.4404 (SST 316 L)
Material of non-wetted parts	
• Enclosure	Stainless steel, mat. no. 1.4404 (SST 316 L)
• Connector housing	Plastic
• Cable	PVC
Certificates and approvals	
Classification according to pressure equipment directive (PED 2014/68/EU)	For gases of fluid group 1 and liquids of fluid group 1; complies with requirements of article 4, paragraph 3 (sound engineering practice)
Lloyd's Register of Shipping (LR)[1]	12/20010
Germanischer Lloyd (GL)[1]	GL19740 11 HH00
American Bureau of Shipping (ABS)[1]	ABS_11_HG 789392_PDA
Bureau Veritas (BV)[1]	BV 271007A0 BV
Det Norske Veritas (DNV)[1]	A 12553
Drinking water approval (ACS)[1]	ACS 15 ACC NY 360
EAC[1]	№ TC RU C-DE.ГБ05.В.00732 ОС НАНИО «ЦСВЭ»
CRN[2]	0F18659.5C
Underwriters Laboratories (UL)[1]	
• For USA and Canada	UL 20110217 - E34453
• Worldwide	IEC UL DK 21845
Explosion protection	
Intrinsic safety "i" (only with current output)	Ex II 1/2 G Ex ia IIC T4 Ga/Gb Ex II 1/2 D Ex ia IIIC T125 °C Da/Db
EC type-examination certificate	SEV 10 ATEX 0146
Connection to certified intrinsically safe ohmic circuits with maximum values	U_i ≤ DC 30 V; I_i ≤ 100 mA; P_i ≤ 0.75 W
Effective internal inductance and capacity for versions with plugs according to EN 175301-803-A and M12	L_i = 0 nH; C_i = 0 nF
CSA[2]	70006348 Class I, Division I, Groups A, B, C&D; Class II, Division 1, Groups E, F and G, Class III Class I, Division 2,Groups A, B, C and D; Class II, Division 2, Groups F and G, Class III A/Ex ia IIC T4 Ga/Gb A/Ex ia IIIC T125°C Da/Db

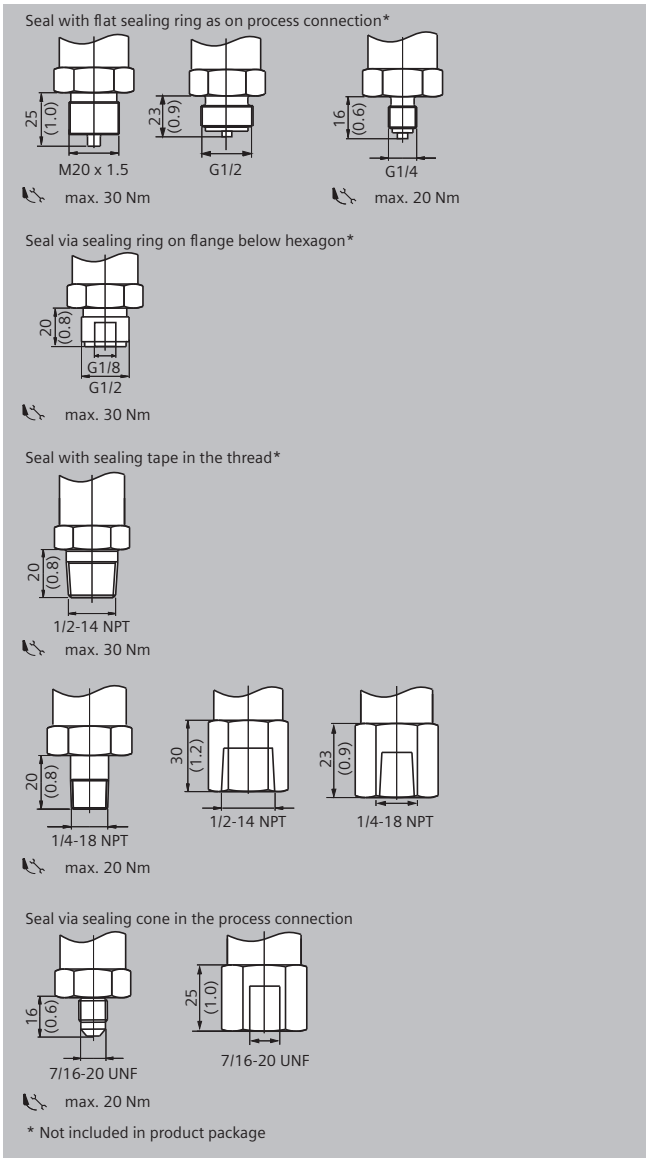
[1] For variants with output signal 0 ... 5 V and radiometric output available soon.
[2] See ordering data for available versions.

Dimensional drawings



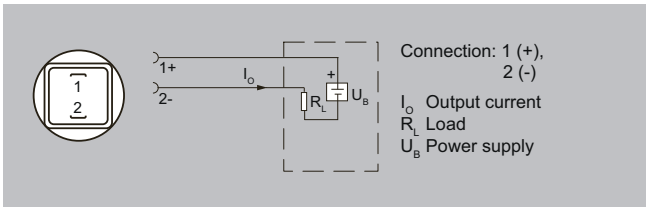
SITRANS P220, electrical connections, dimensions in mm (inch)

Dimensional drawings (continued)

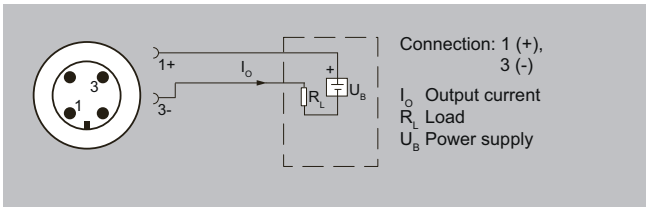


SITRANS P220, process connections, dimensions in mm (inch)

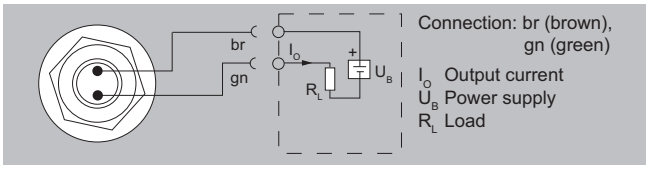
Circuit diagrams



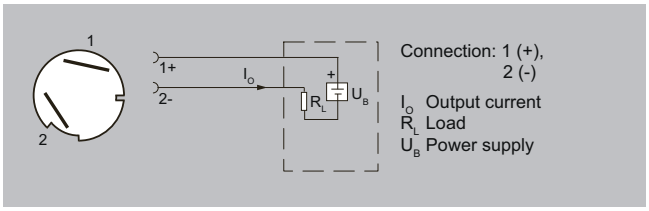
Connection with current output and plug according to EN 175301



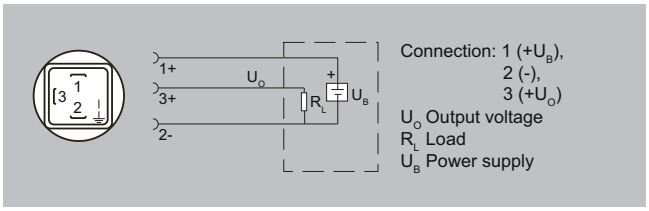
Connection with current output and M12x1 device plug



Connection with current output and cable

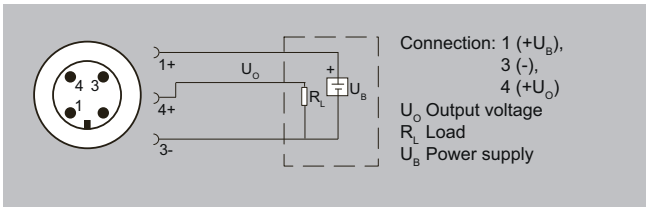


Connection with current output and Quickon cable quick screw connection

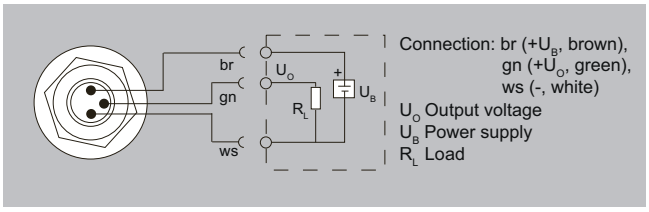


Connection with voltage output, ratiometric output and plug according to EN 175301

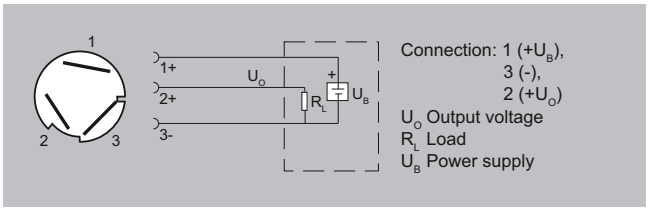
Circuit diagrams (continued)



Connection with voltage output, ratiometric output and M12x1 device plug



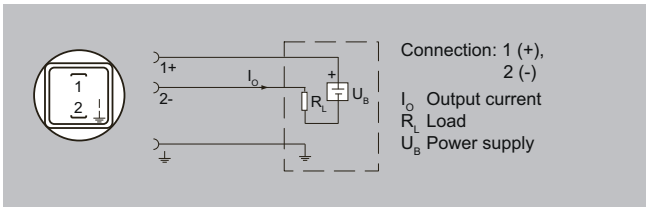
Connection with voltage output, ratiometric output and cable



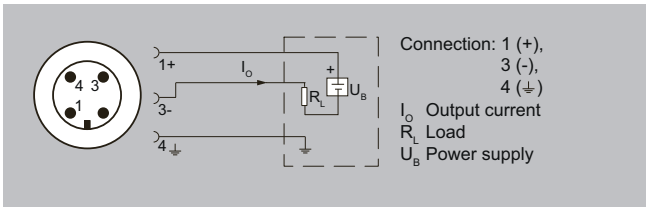
Connection with voltage output, ratiometric output and Quickon fast cable termination

Device design with explosion protection: 4 to 20 mA

The grounding connection is conductively bonded to the transmitter enclosure.



Connection with current output and plug according to EN 175301 (Ex)



Connection with current output and M12x1 (Ex) device plug