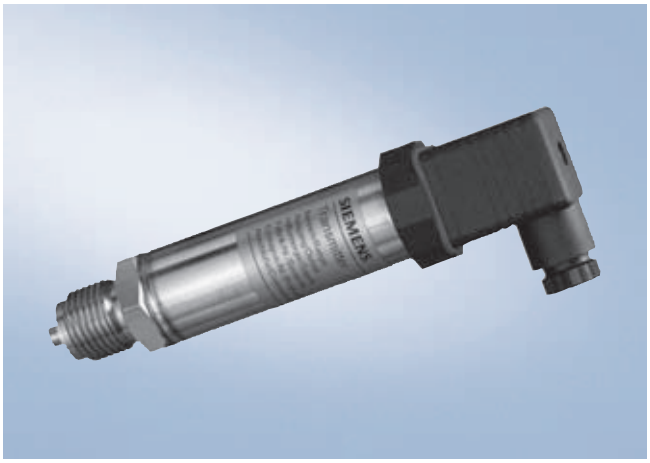
Overview



SITRANS P pressure transmitters, Z series for relative pressure (7MF1562-...)

The SITRANS P pressure transmitter, Z series (7MF1562-...), measures the relative pressure of aggressive and non-aggressive gases, liquids and vapors.

Benefits

- High measuring accuracy
- Sturdy stainless steel housing
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapor
- Temperature-compensated measuring cell
- Compact design

Application

The pressure transmitter of the Z series for pressure (7MF1562-...) is used above all in the following industrial areas:

- Power engineering
- Mechanical engineering
- Shipbuilding
- Water supply etc.

A concrete application example is the measurement of compressed air containing oil in compressors or compressor stations.

Design

The main components of the pressure transmitter are:

- Brass housing with silicon measuring cell and electronics plate
- Process connection
- Electrical connection

The silicon measuring cell has a thin-film strain gauge which is mounted on a ceramic diaphragm. The ceramic diaphragm can also be used for aggressive media.

The process connection to DIN EN 837-1 is made of brass and has a male thread G½A or a female thread $G^1/_8$A.

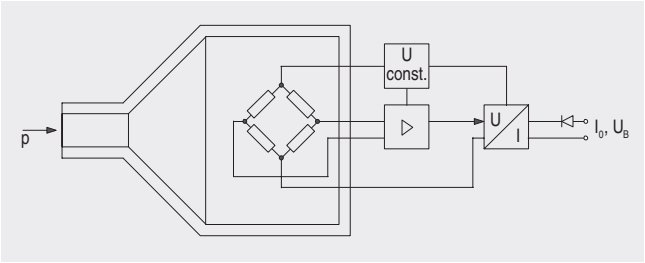
The electrical connection is made using a plug to DIN 43650 with a Pg 9 cable inlet.

Function

The pressure transmitters of the Z series for pressure measure the relative pressure of aggressive and non-aggressive gases, liquids and vapors.

The measuring cell is temperature-compensated.

Mode of operation



SITRANS P pressure transmitters, Z series (7MF1562-...), functional diagram

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

The measuring cell output voltage is fed to an amplifier and converted into an output current of 4 to 20 mA. The output current is linearly proportional to the input pressure.

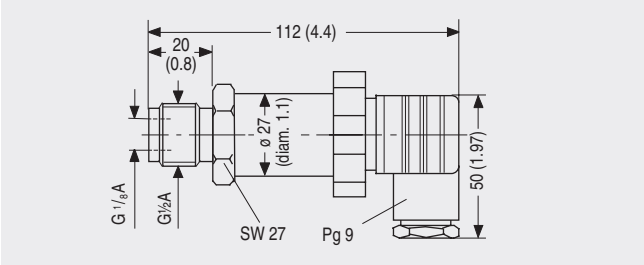
Z series for pressure

2

Technical specifications

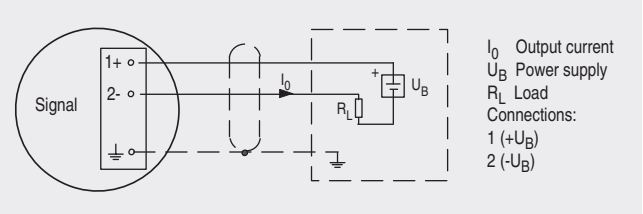
SITRANS P pressure transmitter, Z series for pressure	
Mode of operation	
Measuring principle	Thin-film strain gauge
Input	
Measured variable	Pressure
Measured range	0 ... 16 bar (0 ... 232 psi) or 0 ... 25 bar (0 ... 363 psi)
Output	
Current output signal	4 ... 20 mA
Measuring accuracy	
Error in measurement (at 25 °C (77 °F), including conformity error, hysteresis and repeatability)	0.5% of full-scale value – typical
Response time T_{99}	< 0.1 s
Long-term drift	
• Start of scale	0.3% of full-scale value/year– typical
• Measured span	0.3% of full-scale value/year– typical
Influence of ambient temperature	
• Start of scale	0.3%/10 K (0.3%/18 °F) of full-scale value – typical
• Measured span	0.3%/10 K (0.3%/18 °F) of full-scale value – typical
Rated conditions	
Medium conditions	
• Process temperature	-30 ... +120 °C (-22 ... +248 °F)
Design	
Weight	≈ 0.2 kg (≈ 0.44 lb)
Wetted parts materials	
• Measuring cell	Al_2O_3 – 96%
• Process connection	Brass, mat. No. 2.0402
• Gasket	Viton
Process connection	Male thread G½A female thread $G^1/_8$A
Power supply	
Terminal voltage on pressure transmitter	
• For current output	10 ... 36 V DC
Certificate and approvals	
Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)

Dimensional drawings



SITRANS P pressure transmitters, Z series (7MF1562-...), dimensions in mm (inch)

Schematics



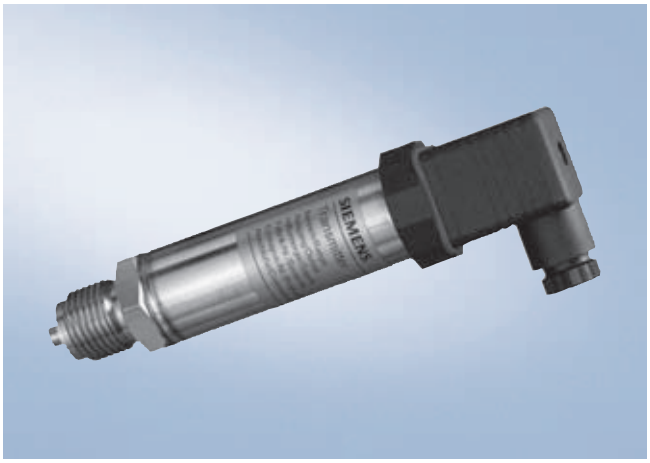
SITRANS P pressure transmitters, Z series (7MF1562-...), connection diagram

Selection and Ordering data

Selection and Ordering data		Order No. Order Code
SITRANS P pressure transmitters **Z series for pressure** 2-wire system, characteristic rising		**7MF1562-** ■■■**00**
Measured range	**Max. working pressure**	
0 ... 16 bar (0 ... 232 psi)	32 bar (464 psi)	**3CB**
0 ... 25 bar (0 ... 363 psi)	64 bar (928 psi)	**3CD**
Other version for measuring range ≥ 1 bar (≥ 14.5 psi), add Order code and plain text: Measuring range: ... up to... bar (psi)		**9AA** **H1Y**

Z series for pressure and absolute pressure

Overview



SITRANS P pressure transmitters, Z series for pressure and absolute pressure (7MF1563-...)

SITRANS P pressure transmitters, Z series (7MF1563-...), measure the relative and absolute pressure as well as the level of liquids and gases.

Benefits

- High measuring accuracy
- Sturdy stainless steel housing
- For aggressive and non-aggressive media
- For measuring the pressure of liquids, gases and vapor
- Temperature-compensated measuring cell
- Compact design

Application

The pressure transmitter of the Z series for pressure and absolute pressure (7MF1563-...) is used above all in the following industrial areas:

- Chemical industry
- Pharmaceutical industry
- Food industry
- Mechanical engineering
- Shipbuilding
- Water supply

Design

The design of the pressure transmitter is dependent on the measuring range.

Measuring range <1 bar (<14.5 psi)

Main components:

- Stainless steel housing with piezo-resistive silicon measuring cell (with stainless steel diaphragm, temperature-compensated) and electronics board
- Process connection to DIN EN 837-1 made of stainless steel, with male thread G½A
- Electrical connection made using a plug to DIN 43650 with a Pg 9 cable inlet

The pressure transmitters with a nominal range < 1 bar (< 14.5 psi) are optionally available with or without explosion protection.

Measuring range ≥1 bar (≥14.5 psi)

Main components:

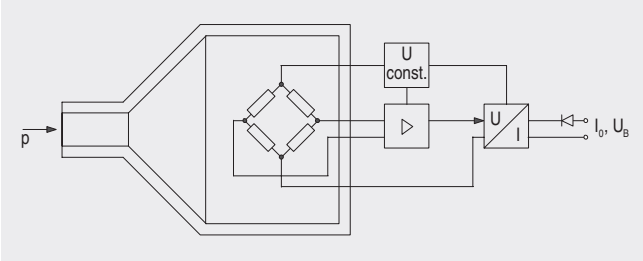
- Stainless steel housing with silicon measuring cell and electronics plate. The temperature-compensated silicon measuring cell has a thin-film strain gauge which is mounted on a ceramic diaphragm. The ceramic diaphragm can also be used for aggressive media.
- Process connection to DIN EN 837-1 made of brass, with male thread G½A or female thread G$^{1}/_{8}$A.
- Electrical connection made using a plug to DIN 43650 with a Pg 9 cable inlet

The pressure transmitters with a nominal range ≥ 1 bar (≥ 14.5 psi) are optionally available with or without explosion protection.

Function

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

Mode of operation



SITRANS P pressure transmitters, Z series (7MF1563-...), functional diagram

The mode of operation of the pressure transmitter is dependent on the measuring range.

Measuring range <1 bar (<14.5 psi)

The silicon measuring cell of the pressure transmitter has a piezo-resistive bridge on which the operating pressure is transmitted through silicone oil and a stainless steel diaphragm.

The measuring cell output voltage is fed to an amplifier and converted into an output current 4 to 20 mA. The output current is linearly proportional to the input pressure

Measuring range ≥1 bar (≥14.5 psi)

The thin-film measuring cell has a thin-film resistance bridge at 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 4 to 20 mA or an output voltage of 0 ... 10 V.

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

Z series for pressure and absolute pressure

2

Technical specifications

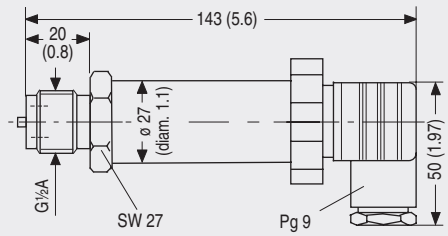
SITRANS P pressure transmitters, Z series for pressure, absolute pressure and level

Mode of operation	
• Measuring range <1 bar (<14.5 psi)	Piezo-resistive Thin-film strain gauge
• Measuring range ≥1 bar (≥14.5 psi)	
Input	
Measured variable	Pressure and absolute pressure
Measured range	
• Pressure	0 ... 400 bar (0 ... 5802 psi)
• Absolute pressure	0 ... 16 bar (0 ... 232 psi) absolute
Output	
Output signal	
• Current output signal	4 ... 20 mA
• Voltage output signal (only measuring range ≥ 1 bar (14.5 psi))	0 ... 10 V DC
Measuring accuracy	
Error in measurement (at 25 °C (77 °F), including conformity error, hysteresis and repeatability)	0.25% of full-scale value – typical
Response time T_{99}	< 0.1 s
Long-term drift	
• Start of scale	0.25% of full scale value/year
• Full-scale value	0.25% of full scale value/year
Influence of ambient temperature	
• Start of scale	0.25%/10 K (0.25%/18 °F) of full-scale value
• Full-scale value	0.25%/10 K (0.25%/18 °F) of full-scale value
Rated conditions	
Process temperature	-30 °C ... +120 °C (-22 ... +248 °F)
Design	
Weight	≈ 0.25 kg (≈ 0.55 lb)
Wetted parts materials	
• Measuring cell	
- Measuring range <1 bar (<14.5 psi)	Stainless steel, mat. No. 1.4571/316Ti
- Measuring range ≥1 bar (≥14.5 psi)	Al_2O_3 – 96%
• Process connection	Stainless steel, mat. No. 1.4571/316Ti
• Gasket	Viton
Process connection	
• Measuring range <1 bar (<14.5 psi)	Male thread G½A
• Measuring range ≥1 bar (≥14.5 psi)	Male thread G½A female thread $G^1/_8A$
Power supply U_H	
Terminal voltage on pressure transmitter	
• For current output	10 ... 36 V DC
• For voltage output signal (only measuring range ≥ 1 bar (14.5 psi))	15 ... 36 V DC

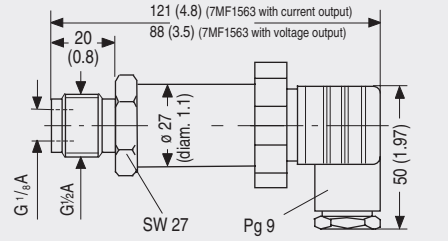
Certificate and approvals

Classification according to pressure equipment directive (DRGL 97/23/EC)	For gases of fluid group 1 and liquids of fluid 1; complies with requirements of article 3, paragraph 3 (sound engineering practice)
Explosion protection	
• Intrinsic safety "i" (only with current output)	TÜV 02 ATEX 1953X
- Identification	Ex II 1/2G EEx ia IIC T4
Lloyds Register of Shipping	Certificate No. 03/30003

Dimensional drawings

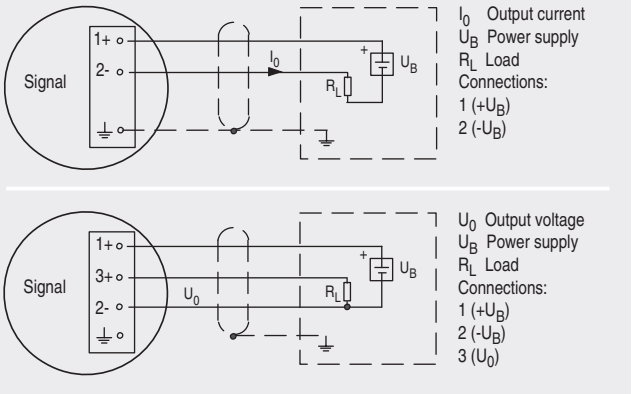


SITRANS P pressure transmitters, Z series (7MF1563-...), nominal measuring range < 1 bar (< 14.5 psi), dimensions in mm (inch)



SITRANS P pressure transmitters, Z series (7MF1563-...), nominal measuring range ≥ 1 bar (≥ 14.5 psi), dimensions in mm (inch)

Schematics



SITRANS P pressure transmitters, Z series (7MF1563-...), connection diagram, with current output (top) and voltage output (bottom)

Selection and Ordering data					Order No.	Order code
SITRANS P pressure transmitters, Z series for pressure and absolute pressure 2- or 3-wire system, characteristic rising					7MF1563-	
Measured range		**Max. working pressure**				
for pressure						
0 ... 100 mbar	(0 ... 1.45 psi)	0.6 bar	(8.7 psi)	►	3AA0	
0 ... 160 mbar	(0 ... 2.32 psi)	0.6 bar	(8.7 psi)	►	3AB0	
0 ... 250 mbar	(0 ... 3.63 psi)	1 bar	(14.5 psi)	►	3AC0	
0 ... 400 mbar	(0 ... 5.80 psi)	1 bar	(14.5 psi)	►	3AD0	
0 ... 600 mbar	(0 ... 8.70 psi)	3 bar	(43.5 psi)	►	3AG0	
Other version for measuring range < 1 bar (< 14.5 psi), add Order code and plain text: Measuring range: ... up to ... mbar (psi) [1]					9AC0	H1Y
0 ... 1 bar	(0 ... 14.5 psi)	7 bar	(102 psi)	►	3BA	
0 ... 1.6 bar	(0 ... 23.2 psi)	7 bar	(102 psi)	►	3BB	
0 ... 2.5 bar	(0 ... 36.3 psi)	12 bar	(174 psi)	►	3BD	
0 ... 4 bar	(0 ... 58.0 psi)	12 bar	(174 psi)	►	3BE	
0 ... 6 bar	(0 ... 87.0 psi)	25 bar	(363 psi)	►	3BG	
0 ... 10 bar	(0 ... 145 psi)	25 bar	(363 psi)	►	3CA	
0 ... 16 bar	(0 ... 232 psi)	50 bar	(725 psi)	►	3CB	
0 ... 25 bar	(0 ... 363 psi)	120 bar	(1740 psi)	►	3CD	
0 ... 40 bar	(0 ... 580 psi)	120 bar	(1740 psi)	►	3CE	
0 ... 60 bar	(0 ... 870 psi)	250 bar	(3626 psi)	►	3CG	
0 ... 100 bar	(0 ... 1450 psi)	250 bar	(3626 psi)	►	3DA	
0 ... 160 bar	(0 ... 2320 psi)	500 bar	(7252 psi)	►	3DB	
0 ... 250 bar	(0 ... 3626 psi)	500 bar	(7252 psi)	►	3DD	
0 ... 400 bar	(0 ... 5802 psi)	600 bar	(8702 psi)	►	3DE	
Other version for measuring range ≥ 1 bar (≥ 14.5 psi), add Order code and plain text: Measuring range: ... up to... bar (psi) [1]					9AA	H1Y
for absolute pressure						
0 ... 600 mbar	(0 ... 8.70 psi)	3 bar	(43.5 psi)	►	5AG0	
Other version for measuring range < 1 bar (< 14.5 psi), add Order code and plain text: Measuring range: ... up to ... mbar (psi)					9AC0	H1Y
0 ... 1 bar	(0 ... 14.5 psi)	7 bar	(102 psi)	►	5BA	
0 ... 1.6 bar	(0 ... 23.2 psi)	7 bar	(102 psi)	►	5BB	
0 ... 2.5 bar	(0 ... 36.3 psi)	12 bar	(174 psi)	►	5BD	
0 ... 4 bar	(0 ... 58.0 psi)	12 bar	(174 psi)	►	5BE	
0 ... 6 bar	(0 ... 87.0 psi)	25 bar	(363 psi)	►	5BG	
0 ... 10 bar	(0 ... 145 psi)	25 bar	(363 psi)	►	5CA	
0 ... 16 bar	(0 ... 232 psi)	50 bar	(725 psi)	►	5CB	
Other version for measuring range < 1 bar (< 14.5 psi), add Order code and plain text: Measuring range: ... up to ... mbar (psi)					9AB0	H1Y
Output signal						
• 4 ... 20 mA; 2-wire system; power supply 10 ... 36 V DC				►	0	
• 0 ... 10 V; 3-wire system; power supply 15 ... 36 V DC				►	10	
Explosion protection						
• Without				►	0	
• With explosion protection EEx ia IIC T4					1	

► Available ex stock

1) The transmitters can also be ordered with special measuring ranges, e.g. the transmitter with the 1 bar measuring cell (14.5 psi measuring cell):
-1 ... 0 bar (-14.5 ... 0 psi) or
-0.5 ... 0.5 bar (-7.25 ... 7.25 psi) or
-0.2 ... 0.8 bar (-2.9 ... 11.6 psi) or