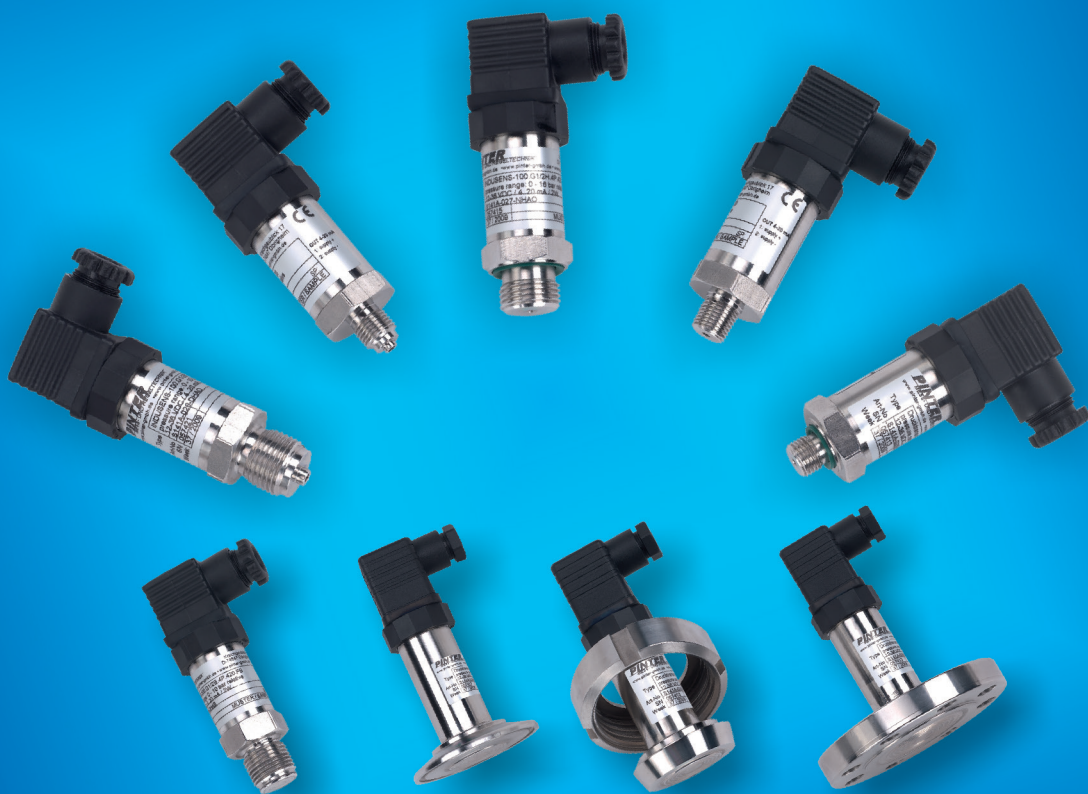


Product Catalogue

INDUSENS® Pressure Transmitters



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DEFINITION OF PRESSURE

A force applied uniformly over a certain area is called **pressure**:

$$p = F / A$$

(pressure = force / area)

Pressure (P) besides temperature is one of the most frequently measured physical units. The unit „Pascal“ (Pa) is the SI unit of pressure within the metric unit system. In Europe „bar“ is the most commonly used (SI) unit. It roughly equals with the magnitude of the atmospheric pressure.

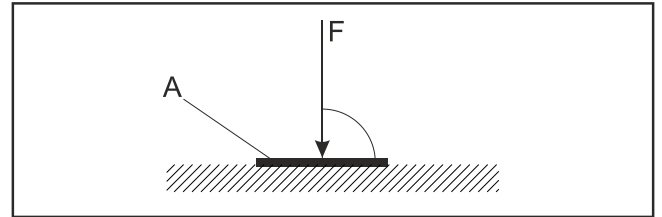
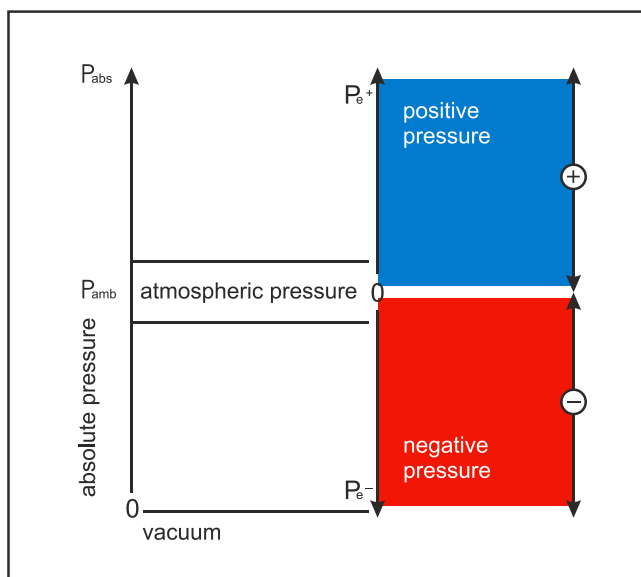
$$1 \text{ bar} = 0,1 \text{ MPa} = 0,1 \text{ N/m}^2 = 10^5 \text{ Pa}$$

Particularly in the anglo-american influenced region „psi“ (pounds per square inch) is the most common unit.

The general term „pressure“ is not always very clear:

In technical usage several types of pressure are differentiated, mainly differences between two pressure points, which in general linguistic usage all are called pressure.

To avoid confusion, the various types of pressure are distinguished according to their point of reference:



Absolute Pressure (P_{abs})

Absolute pressure always refers to the absolute vacuum, i.e. the zero-point is the absolute vacuum.

A pressure gauge with measuring range 0 - 10 bar absolute shows the current ambient pressure (P_{amb}) when in nonoperating state/not installed.

Ambient Pressure (P_{amb})

The atmospheric pressure is the ambient pressure.

Atmospheric Pressure Difference (P_e)

The atmospheric pressure difference, also called positive pressure (P_{e+}) respectively negative pressure (P_{e-}) is the most commonly measured type of pressure in the technical field.

It refers to atmospheric pressure (P_{amb}) and is the difference between the atmospheric pressure (P_{amb}) and absolute pressure (P_{abs}).

$$P_e = P_{abs} - P_{amb}$$

P_e becomes positive when the absolute pressure is higher than the atmospheric pressure; P_e becomes negative when the absolute pressure is lower than the atmospheric pressure.

A pressure gauge with measuring range 0 - 10 bar relative shows 0 bar when in nonoperating state/not installed.

Differential Pressure (DP)

Differential pressure is the pressure difference (ΔP) between two measured pressures (P_1 , P_2).

$$\Delta P = P_1 - P_2$$

Differential pressure instruments are universal, as they can be used to as a relative pressure instrument or for **hydrostatic level measurement**.

WHAT IS A PRESSURE TRANSMITTER ?

Pressure transmitters transform the applied process pressure into a proportional electrical signal. For example this signal can be a defined current of 4 - 20mA.

Each pressure value corresponds clearly to a value of the electric current.

Due to the continuous change of pressure, the signal changes continuously accordingly.

The output signals (0 - 10 V, 0 - 20 mA, 4 - 20 mA) are transmitted as standardized analogue signals to e.g. an PLC.

Applications for pressure transmitters begin with a few mbar up to to several hundred bar.

INDUSENS® pressure transmitters are available with different measuring cells, a variety of specific electrical and process connections and connection types, opening a vast range of applications.

INDUSENS® - VERSIONS AND APPLICATIONS

	INDUSENS-100	INDUSENS-200	INDUSENS-3xx	INDUSENS-400	INDUSENS-5xx
Function	Pressure transmitter for measuring pressure and vacuum of gaseous and liquid, non-crystallizing or highly viscous media.	Pressure transmitter for measuring pressure and vacuum of gaseous and liquid, also crystallized or highly viscous media.	Pressure transmitter for measuring pressure and vacuum of gaseous and liquid, also crystallized or highly viscous media. Specifically for the food industry (310/320/330 models).	Pressure transmitters for the measurement of low pressures of gaseous and non-aggressive low-viscosity media	Pressure transmitter for measuring pressure and vacuum of gaseous and liquid, also crystallized or highly viscous media.
Special features	-	front facing diaphragm		-	-
Measuring cell	ceramics			silicium sensor	stainless steel
Wettd parts	ceramics, stainless steel, FKM	stainless steel	stainless steel	ceramics, silicium stainless steel, FKM	stainless steel
Measuring ranges	Pressure, High Pressure, Vacuum			Lowest Pressure, Low Pressure, Vacuum	Low Pressure, Pressure, High Pressure, Vacuum
Output signals	4 - 20 mA, 0 -10V				
Accuracy	0,5% FS				0,5% FS, 0,25% FS, 0,1% FS
Process connection	thread connection		DIN 11851, DIN 32676, ISO 2852, Varivent®, EN 1092-1, ASME B16.5	thread connection	
Electr. connection	plug ISO 4400, plug M12, cable				
Catalogue page	6	10	14	32	36

INDUSENS Pressure Transmitter Model 100



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 400 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS

Description

The INDUSENS-100 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, not crystallizing or highly viscous media.

Operating Principle

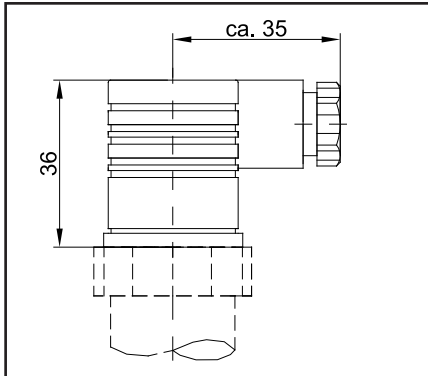
INDUSENS-100 pressure transmitters are equipped with with a stable, corrosion-resistand ceramics sensor, without any transmission fluids.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

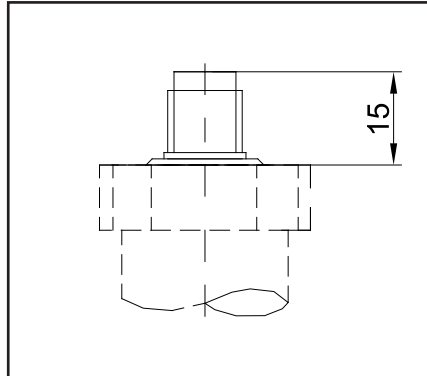
Technical Data	Standard	Option
Function	Pressure Transmitter with Ceramics Sensor	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
High Pressure Ranges	0 - 60 bar; 0 - 100 bar; 0 - 160 bar; 0 - 250 bar, 0 - 400 bar	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	FKM	on request
Permissable Media Temperature	-20...+125°C	on request
Permissable Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 150 g	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
cleaned for oxygen (O2 service)		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

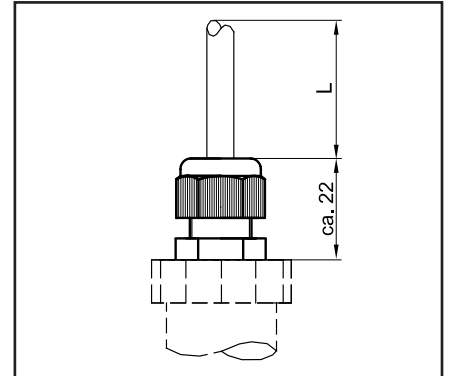
Electrical Connection
plug ISO 4400



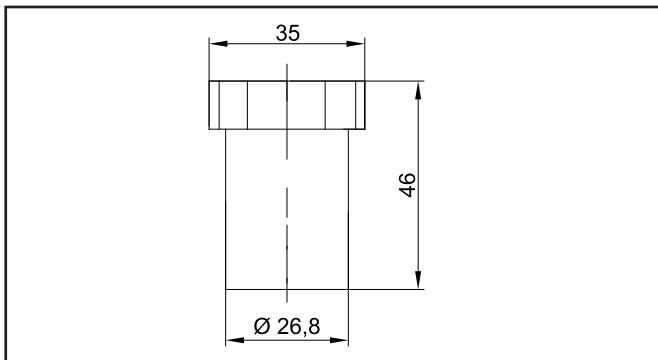
Electrical Connection
plug M12



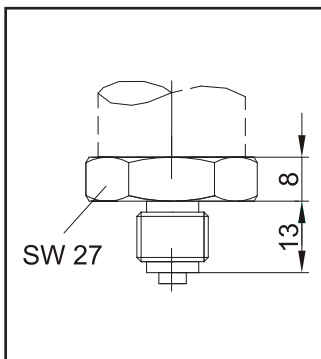
Electrical Connection
cable



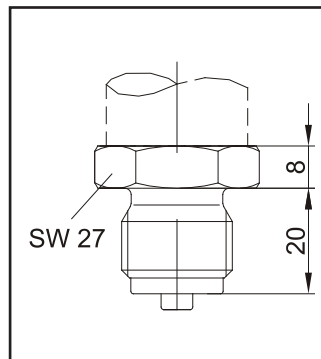
Body
Standard Version



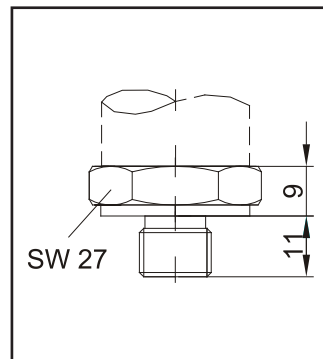
Process Connection
G 1/4 B (EN 837)



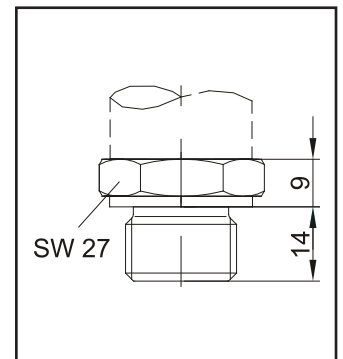
Process Connection
G 1/2 B (EN 837)



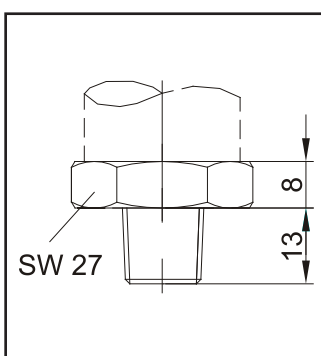
Process Connection
G 1/4 (DIN 3852)



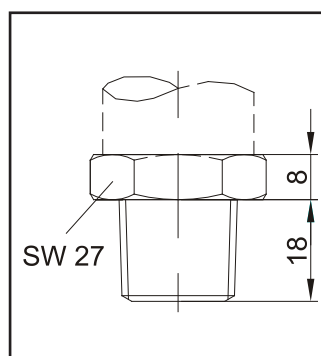
Process Connection
G 1/2 (DIN 3852)



Process Connection
1/4" NPT male (ASME B1.20)

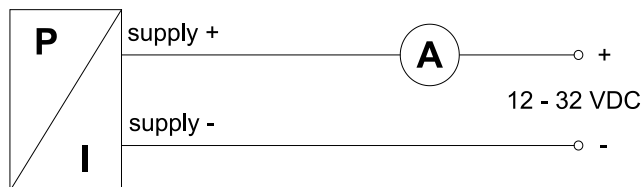


Process Connection
1/2" NPT male (ASME B1.20)

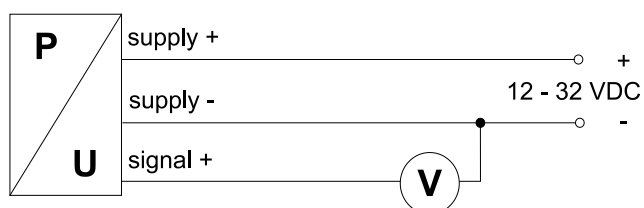


ELECTRICAL DATA

4 - 20 mA, 2-wire

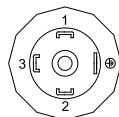


0 - 10 V, 3-wire

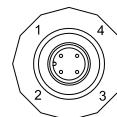


ELECTRICAL CONNECTION

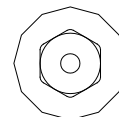
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	1	4	1	A	-	x	x	-	x	x	x	x
Pressure Type	relative							0						
	absolute							5						
Pressure Range	-1...0 bar							0	06					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
	0 - 60 bar							0	30					
	0 - 100 bar							0	31					
	0 - 160 bar							0	32					
	0 - 250 bar							0	33					
	0 - 400 bar							0	35					
Process Connection	G 1/4 B (EN 837)										B			
	G 1/2 B (EN 837)										D			
	G 1/4 (DIN 3852)										M			
	G 1/2 (DIN 3852)										N			
	1/4" NPT male (ASME B1.20)										I			
	1/2" NPT male (ASME B1.20)										J			
	G 1/4 (EN 837)										G			
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Further Options	no further options													O
	oxygen cleaning													A
	further options as per comments													#

INDUSENS Pressure Transmitter Model 200



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 250 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS
- **threaded connection, front facing diaphragm**

Description

The INDUSENS-100 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Operating Principle

INDUSENS-200 pressure transmitters are equipped with a stable, corrosion-resistant ceramics sensor.

The process connection is made out with a diaphragm which is in contact with the media (front facing diaphragm). The room between the diaphragm and the ceramics sensor is filled with a transmission fluid.

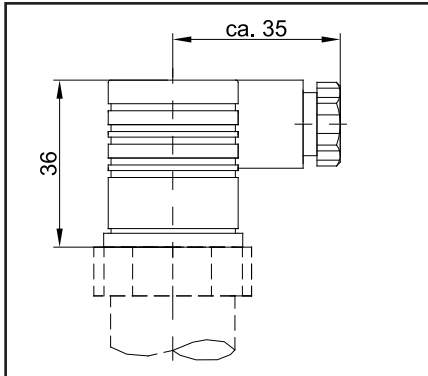
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

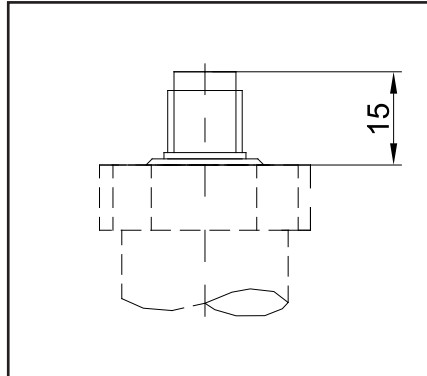
Technical Data	Standard	Option
Function	Pressure Transmitter with Front Facing Diaphragm	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
High Pressure Ranges	0 - 60 bar; 0 - 100 bar; 0 - 160 bar; 0 - 250 bar	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (<u>not</u> wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	no sealing	on request
Permissible Media Temperature	-20...+125°C	on request
Permissible Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 150 g	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
cleaned for oxygen (O2 service)		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

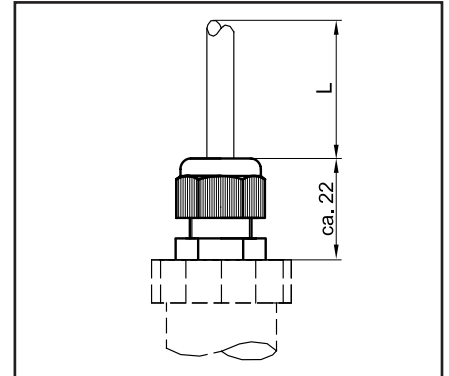
Electrical Connection
plug ISO 4400



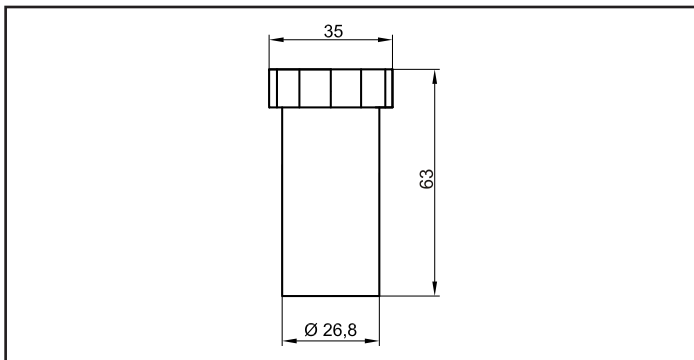
Electrical Connection
plug M12



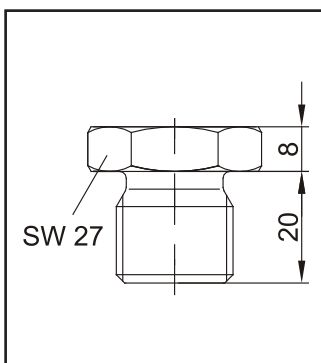
Electrical Connection
cable



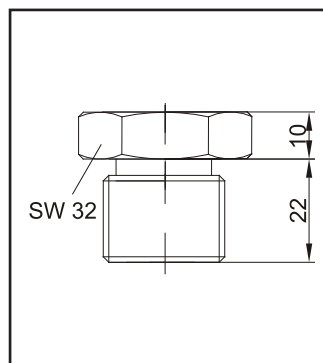
Body
Standard Version



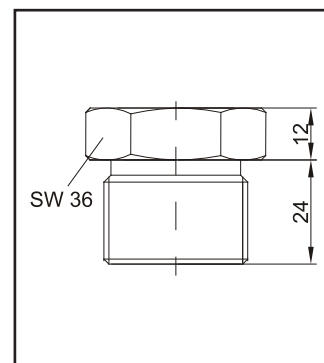
Process Connection
1/2" BSP male front facing



Process Connection
3/4" BSP male front facing

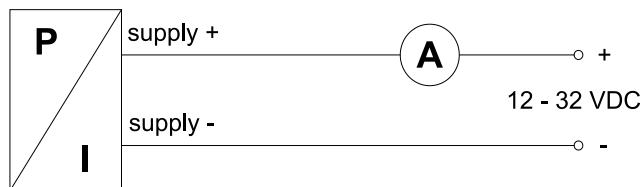


Process Connection
1" BSP male front facing

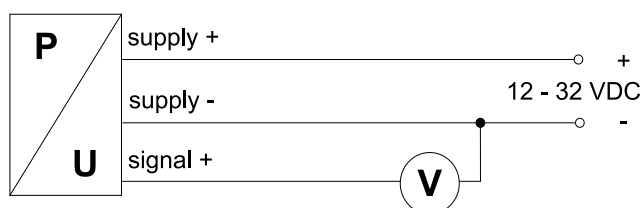


ELECTRICAL DATA

4 - 20 mA, 2-wire

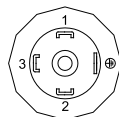


0 - 10 V, 3-wire

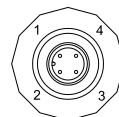


ELECTRICAL CONNECTION

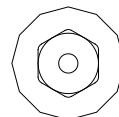
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	2	4	2	A	-	x	x	-	x	x	x	B
Pressure Type	relative							0						
	absolute							5						
Pressure Range	-1...0 bar							0	06					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
	0 - 60 bar							0	30					
	0 - 100 bar							0	31					
	0 - 160 bar							0	32					
	0 - 250 bar							0	33					
	0 - 400 bar							0	35					
Process Connection	1/2" BSP male front facing diaphragm										D			
	3/4" BSP male front facing diaphragm										E			
	1" BSP male front facing diaphragm										F			
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	

INDUSENS Pressure Transmitter Model 310



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 40 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS
- **process connection according to DIN 11851, front facing diaphragm**

Description

The INDUSENS-310 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Especially for food stuff.

Operating Principle

INDUSENS-310 pressure transmitters are equipped with with a stable, corrosion-resistant ceramics sensor.

The process connection is made out with a diaphragm which is in contact with the media (front facing diaphragm). The room between the diaphragm and the ceramics sensor is filled a transmission fluid.

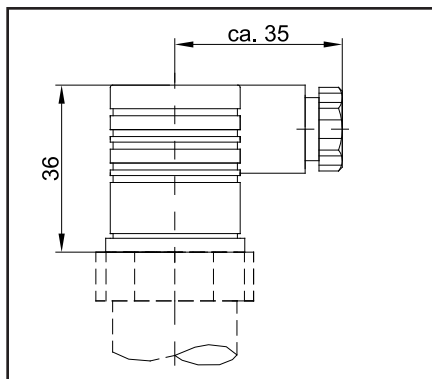
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

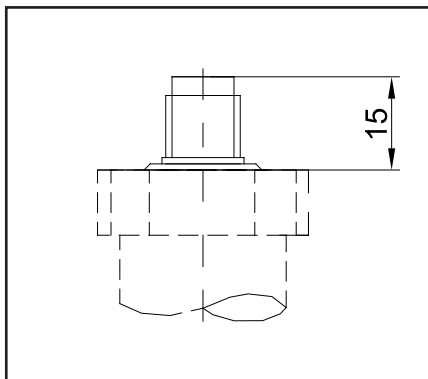
Technical Data	Standard	Option
Function	Pressure Transmitter with Front Facing Diaphragm	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (<u>not</u> wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	no sealing	keine
Filling Fluid	FDA approved	
Permissible Media Temperature	-20...+125°C	on request
Permissible Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 500 - 1500 g (depending on process connection)	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

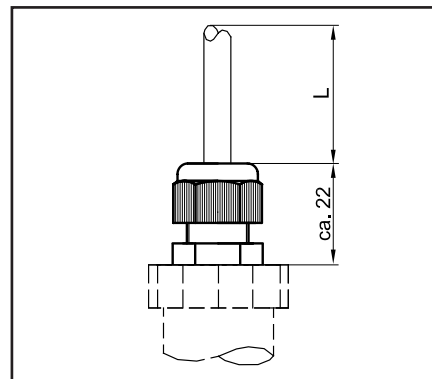
Electrical Connection
plug ISO 4400



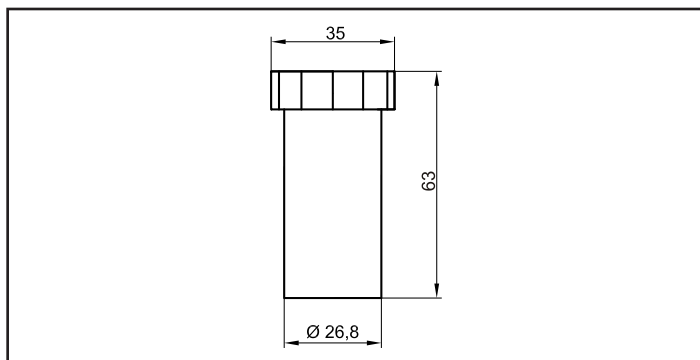
Electrical Connection
plug M12



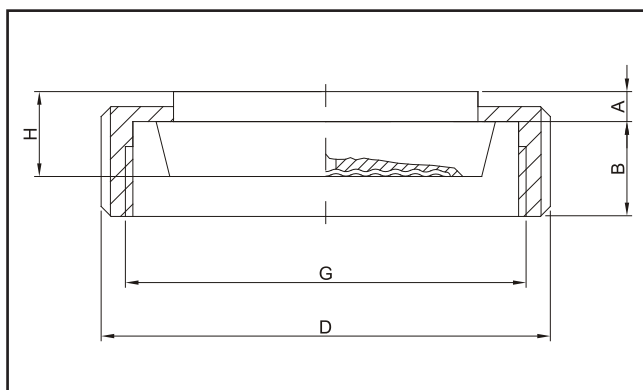
Electrical Connection
cable



Body
Standard Version



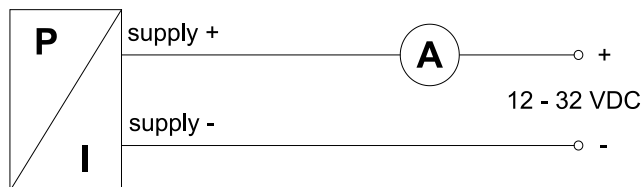
Process Connection
DIN 11851



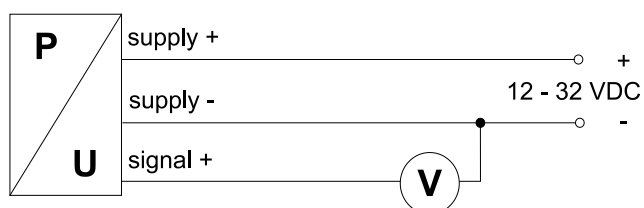
DN	PN	G [Rd]	D	H
25	40	52x1/6"	63	14
32	40	58x1/6"	70	14
40	40	65x1/6"	78	14
50	25	78x1/6"	92	15
65	25	95x1/6"	112	15
80	25	110x1/4"	127	17
100	25	130x1/6"	149	19

ELECTRICAL DATA

4 - 20 mA, 2-wire

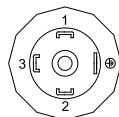


0 - 10 V, 3-wire

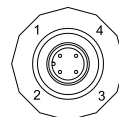


ELECTRICAL CONNECTION

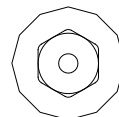
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	3	4	2	A	-	x	x	-	S	x	x	x
Pressure Type	relative							0						
	absolute							5						
Pressure Range	-1...0 bar							0	06					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Process Connection	DN 25 PN 40													M004
	DN 32 PN 40													M026
	DN 40 PN 40													M006
	DN 50 PN 25													M021
	DN 65 PN 25													M024
	DN 80 PN 25													M027
	DN 100 PN 25													M029

INDUSENS Pressure Transmitter Model 320



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 40 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS
- **process connection acc. to ISO 2852 / DIN 32676 front facing diaphragm**

Description

The INDUSENS-320 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Especially for food stuff.

Operating Principle

INDUSENS-320 pressure transmitters are equipped with with a stable, corrosion-resistant ceramics sensor.

The process connection is made out with a diaphragm which is in contact with the media (front facing diaphragm). The room between the diaphragm and the ceramics sensor is filled a transmission fluid.

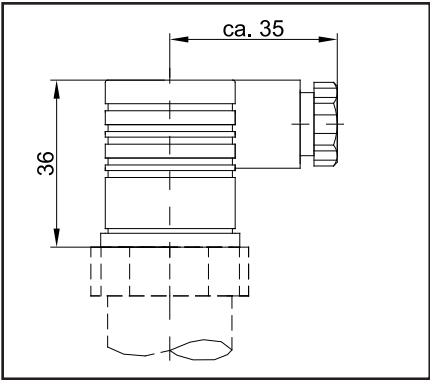
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

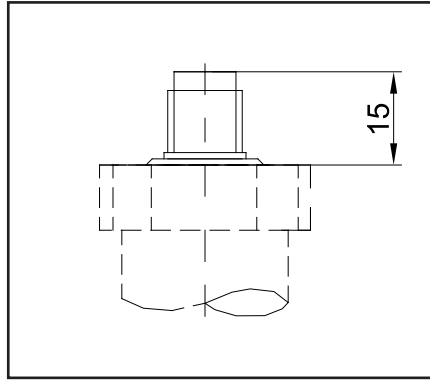
Technical Data	Standard	Option
Function	Pressure Transmitter with Front Facing Diaphragm	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (<u>not</u> wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	no sealing	keine
Filling Fluid	FDA approved	
Permissible Media Temperature	-20...+125°C	on request
Permissible Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 500 - 1500 g (depending on process connection)	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

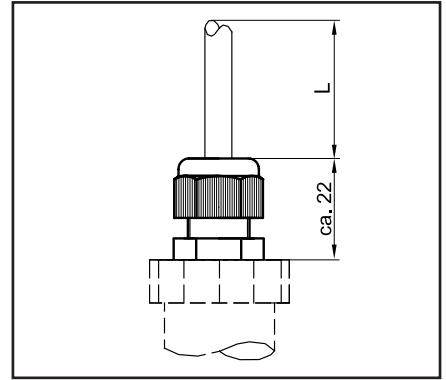
Electrical Connection
plug ISO 4400



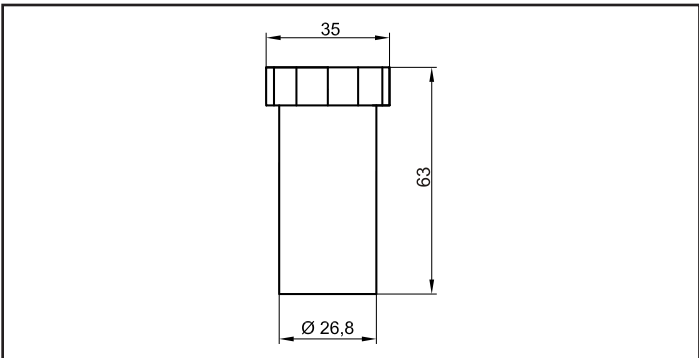
Electrical Connection
plug M12



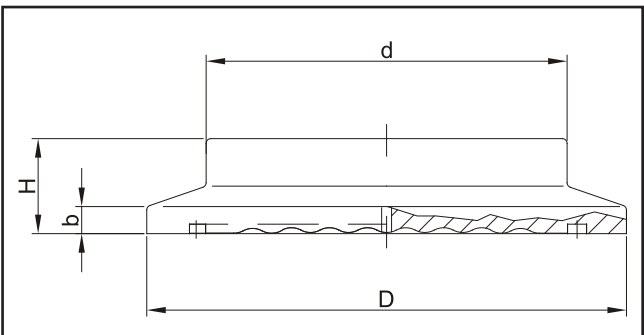
Electrical Connection
cable



Body
Standard Version

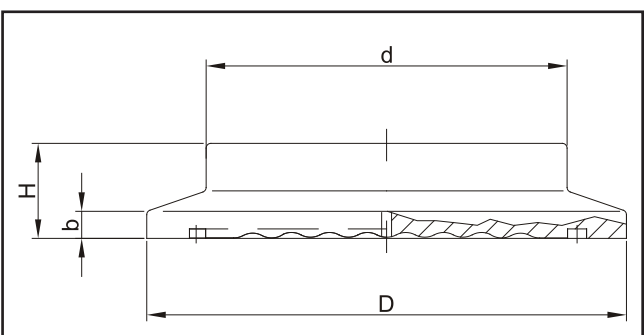


Process Connection
DIN 32676



DN	PN	D	d	H	b
25	40	50,5	38	10	2,85
32	40	50,5	38	10	2,85
40	40	50,5	38	10	2,85
50	40	64	38	10	2,85
65	25	91	38	10	2,85

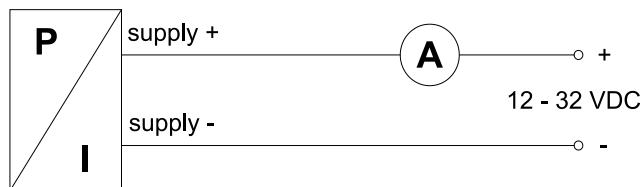
Process Connection
ISO 2852



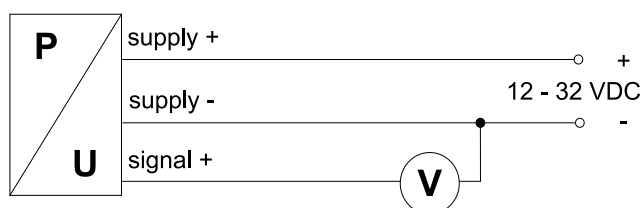
DN	PN	D	d	H	b
1"	40	50,5	38	10	2,85
1 1/2"	40	50,5	38	10	2,85
2"	40	64	38	10	2,85
2 1/2"	25	77,5	38	10	2,85
3"	25	91	38	10	2,85

ELECTRICAL DATA

4 - 20 mA, 2-wire

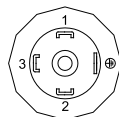


0 - 10 V, 3-wire

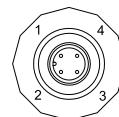


ELECTRICAL CONNECTION

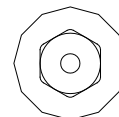
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	3	4	2	A	-	x	x	-	S	x	x	x
Pressure Type	relative							0						
	absolute							5						
Pressure Range	-1...0 bar							0	06					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Process Connection DIN 32676	DN 25 PN 40													C004
	DN 32 PN 40													C026
	DN 40 PN 40													C006
	DN 50 PN 40													C021
	DN 65 PN 25													C024
Process Connection ISO 2852	DN 1" PN 40													C016
	DN 1 1/2" PN 40													C017
	DN 2" PN 40													C018
	DN 2 1/2" PN 40													C019
	DN 3" PN 25													C020

INDUSENS Pressure Transmitter Model 340



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 100 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS
- **flange connection acc. to EN 1092-1 with front facing diaphragm**

Description

The INDUSENS-340 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Operating Principle

INDUSENS-340 pressure transmitters are equipped with with a stable, corrosion-resistant ceramics sensor.

The process connection is made out with a diaphragm which is in contact with the media (front facing diaphragm). The room between the diaphragm and the ceramics sensor is filled a transmission fluid.

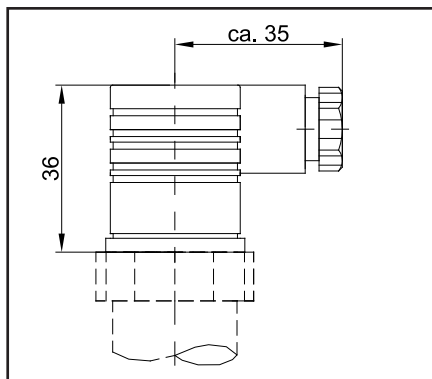
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

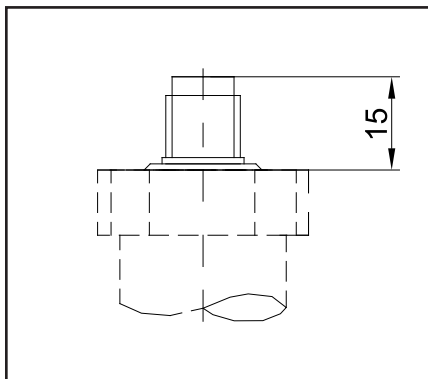
Technical Data	Standard	Option
Function	Pressure Transmitter with Front Facing Diaphragm	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
High Pressure Ranges	0 - 60 bar; 0 - 100 bar	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (<u>not</u> wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	no sealing	keine
Material Diaphragm Coating (wetted)		PTFE, PFA, ECTFE, Gold, Silver
Filling Fluid	wide range oil (-20°...+200°C)	FDA-approved, low temperature oil, high temperature oil, Halocarbon, NU52
Permissable Media Temperature	-20...+125°C	on request
Permissable Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 500 - 1500 g (depending on process connection)	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
cleaned for O2 service		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

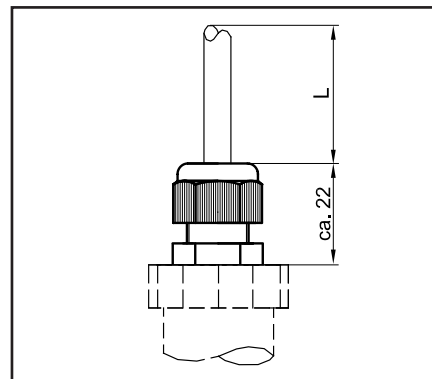
Electrical Connection
plug ISO 4400



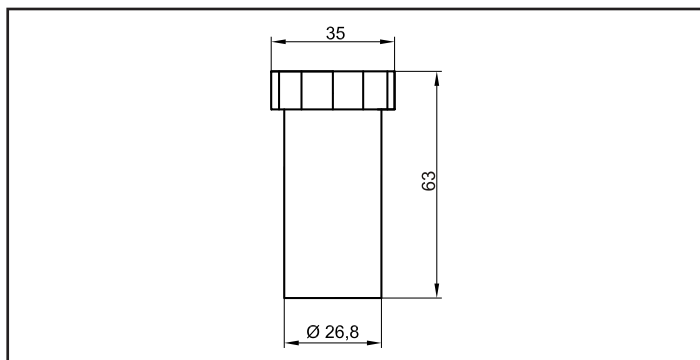
Electrical Connection
plug M12



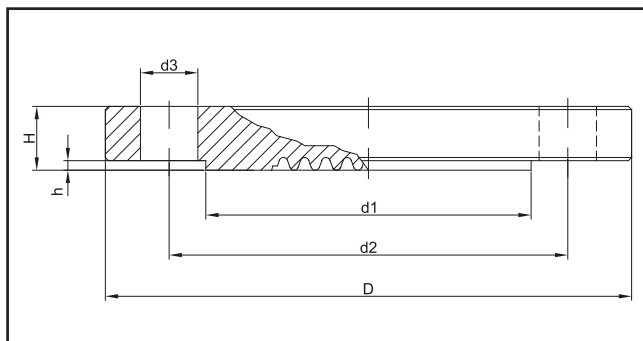
Electrical Connection
cable



Body
Standard Version



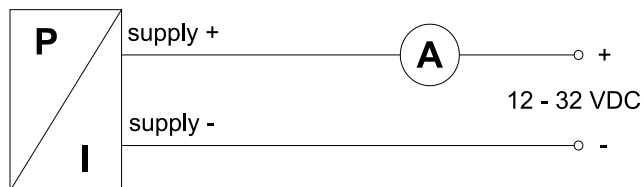
Process Connection
Flange acc. to **EN 1092-1**



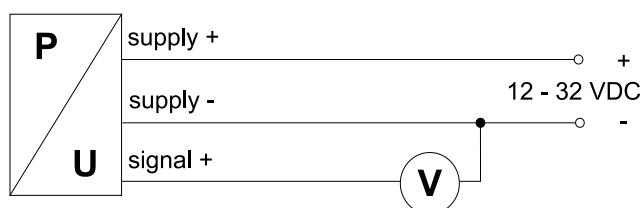
DN	PN	D	d1	d2	d3	H	h
25	40	115	68	85	4x14	18	2
25	100	140	68	100	4x18	24	2
25	160	140	68	100	4x18	24	2
40	40	150	88	110	4x18	18	2
40	100	170	88	125	4x22	26	3
40	160	170	88	125	4x22	28	3
50	40	165	102	125	4x18	20	3
50	64	180	102	135	4x22	26	3
50	100	195	102	145	4x26	28	3
80	16	200	138	145	8x18	20	3
80	40	200	138	160	8x18	24	3
80	64	215	138	160	8x22	28	3
100	16	220	158	180	8x18	20	3
100	40	235	162	190	8x22	24	3
100	64	250	162	200	8x26	30	3
125	16	250	188	210	8x18	22	3
125	10	270	188	220	8x26	26	3
125	64	295	188	240	8x30	34	3

ELECTRICAL DATA

4 - 20 mA, 2-wire

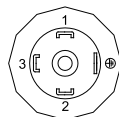


0 - 10 V, 3-wire

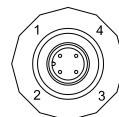


ELECTRICAL CONNECTION

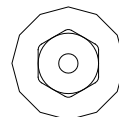
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	3	4	2	A	-	x	x	-	S	x	x	x
Pressure Type	relative							0						
	absolute							5						
Pressure Range	-1...0 bar							0	06					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
	0 - 60 bar							0	30					
	0 - 100 bar							0	31					
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Process Connection	PN	DN												
	25	40												F004
	25	100												F014
	25	160												F044
	40	40												F006
	40	100												F051
	40	160												F052
	50	40												F000
	50	64												F045
	50	100												F053
	80	16												F012
	80	40												F003
	80	64												F054

INDUSENS Pressure Transmitter Model 350



- excellent price/performance ratio
- million times proven ceramics sensor
- pressure ranges from -1...0 bar to 0 - 100 bar
- relative- and absolute pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS
- **flange connection acc. to ASME B16.5 with front facing diaphragm**

Description

The INDUSENS-350 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Operating Principle

INDUSENS-350 pressure transmitters are equipped with with a stable, corrosion-resistant ceramics sensor.

The process connection is made out with a diaphragm which is in contact with the media (front facing diaphragm). The room between the diaphragm and the ceramics sensor is filled a transmission fluid.

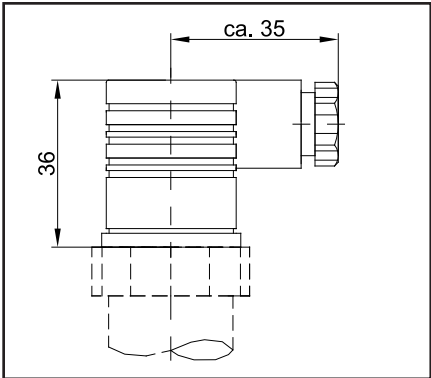
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the ceramics sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

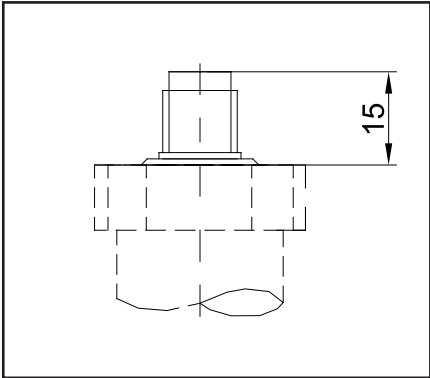
Technical Data	Standard	Option
Function	Pressure Transmitter with Front Facing Diaphragm	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
High Pressure Ranges	0 - 60 bar; 0 - 100 bar	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (<u>not</u> wetted)	Ceramics (Al ₂ O ₃),	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	no sealing	keine
Material Diaphragm Coating (wetted)		PTFE, PFA, ECTFE, Gold, Silver
Filling Fluid	wide range oil (-20°...+200°C)	FDA-approved, low temperature oil, high temperature oil, Halocarbon, NU52
Permissible Media Temperature	-20...+125°C	on request
Permissible Ambient Temperature	-40...+85°C	on request
Temperature Deviation	ca. 0,5% je 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 1 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 500 - 1500 g (depending on process connection)	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
cleaned for O2 service		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see catalogue „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see catalogue „Accessories“		

DIMENSIONAL DRAWINGS

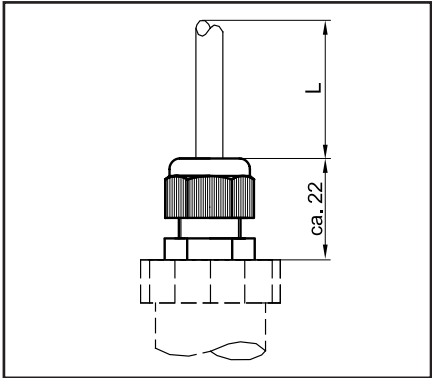
Electrical Connection
plug ISO 4400



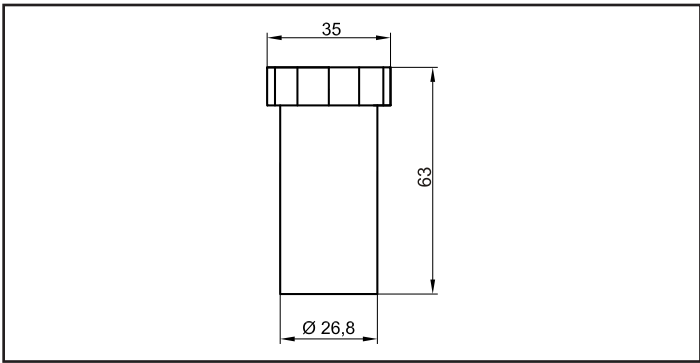
Electrical Connection
plug M12



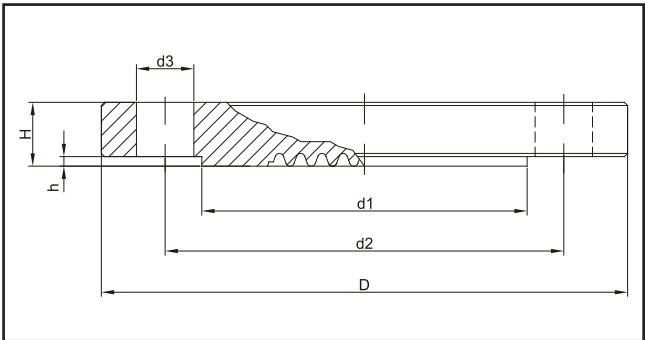
Electrical Connection
cable



Body
Standard Version



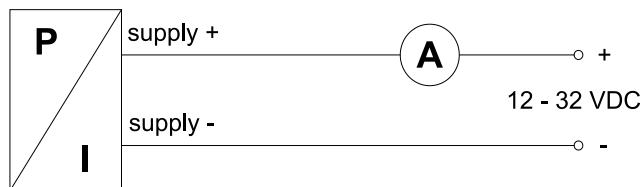
Process Connection
Flange acc. to **ASME B16.5**



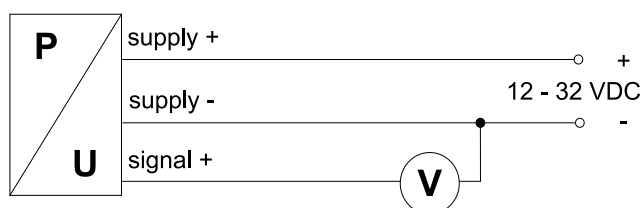
DN	CL	D	d1	d2	d3	H	h
1"	150	108	51	79	4x16	14	1,5
1"	300	124	51	89	4x19	18	1,5
1"	600	124	51	89	4x19	18	6,3
1,5"	150	127	73	98	4x16	17	1,5
1,5"	300	155	73	114	4x22	21	1,5
1,5"	600	155	73	114	4x22	22	6,3
2"	150	152	92	121	4x19	19	1,5
2"	300	165	92	127	8x19	22	1,5
2"	600	165	92	127	8x19	25	6,3
3"	150	190	127	152	4x19	24	1,5
3"	300	210	127	168	8x22	28	1,5
3"	600	210	127	168	8x22	32	6,3
4"	150	229	157	190	8x19	24	1,5
4"	300	254	157	200	8x22	32	1,5
4"	600	254	157	200	8x25	35	6,3
5"	150	254	186	216	8x22	24	1,5
5"	300	279	186	235	8x22	35	1,5
5"	400	279	186	235	8x25	38	6,3

ELECTRICAL DATA

4 - 20 mA, 2-wire

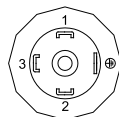


0 - 10 V, 3-wire

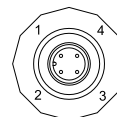


ELECTRICAL CONNECTION

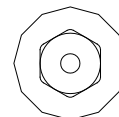
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	3	4	2	A	-	x	x	-	S	x	x	x	
Pressure Type	relative								0						
	absolute								5						
Pressure Range	-1...0 bar								0	06					
	0 - 1 bar									20					
	0 - 1,6 bar									22					
	0 - 2,5 bar									23					
	0 - 4 bar									24					
	0 - 6 bar									25					
	0 - 10 bar									26					
	0 - 16 bar									27					
	0 - 25 bar									28					
	0 - 40 bar									29					
	0 - 60 bar								0	30					
	0 - 100 bar								0	31					
Electrical Connection	plug ISO 4400												H		
	plug M12												M		
	cable 0,5 m												A		
	cable 1 m												B		
Output Signal	4 - 20 mA													A	
	0 - 10 V													B	
Process Connection	DN	CL													
	1"	150													F032
	1"	300													F005
	1"	600													F058
	1,5"	150													F031
	1,5"	300													F035
	1,5"	600													F059
	2"	150													F036
	2"	300													F037
	2"	600													F060
	3"	150													F038
	3"	300													F039
	3"	600													F061

INDUSENS Pressure Transmitter Model 400



- excellent price/performance ratio
- innovative piezoresistive silicium sensor
- pressure ranges from -1000...0 mbar up to 0 - 1000 mbar
- relative pressure
- output signal 4 - 20 mA oder 0 - 10 V
- accuracy $\leq 0,5\%$ FS

Description

The INDUSENS-400 is a pressure transmitter for measuring lowest pressure and vacuum of gaseous non-aggressive and not highly viscous media.

Operating Principle

INDUSENS-400 pressure transmitters are equipped with a piezoresistive silicium sensors cell.

The process pressure acts on this sensor and is being transformed into standardized continuous current of voltage output signals.

The silicium sensor is equipped with a diaphragm which is in contact with the media. The room between the diaphragm and the sensor is filled a transmission fluid.

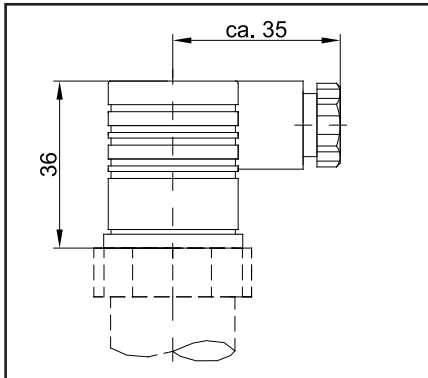
The actual process pressure applied to the diaphragm is „transmitted“ to the ceramics sensor via the filling fluid.

The pressure acting on the sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

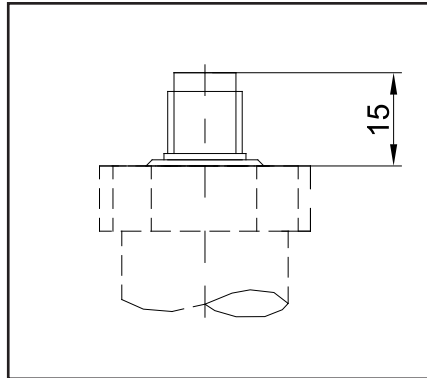
Technical Data	Standard	Option
Function	pressure transmitter with silicium sensor cell	
Lowest Pressure Ranges	0 - 10 mbar; 0 - 20 mbar; 0 - 40 mbar; 0 - 60 mbar	
Low Pressure Ranges	0 - 100 mbar; 0 - 160 mbar; 0 - 250 mbar ; 0 - 400 mbar; 0 - 600 mbar (relative oder absolute)	
Vacuum Ranges	-1000...0 mbar	
Overpressure Safety	-1...0 bar: 2,5 bar 0 - 10 / 0 - 20 mbar: 60 mbar 0 - 40 bis 0 - 100 mbar: 300 mbar 0 - 160 bis 0 - 400 mbar: 1000 mbar 0 - 600 / 0 - 1000 mbar: 3000 mbar	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (wetted)	Edelstahl 1.4305 (AISI 303), Al ₂ O ₃ , Silicium	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	FKM	on request
Permissible Media Temperature	-20...+85°C	on request
Permissible Ambient Temperature	-25...+85°C	on request
Temperature Deviation	approx. 0,5% per 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	on request
typical response delay	≤ 5 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	14 - 36 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 150 g	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see main catalogue chapter „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see main catalogue chapter „Accessories“		

DIMENSIONAL DRAWINGS

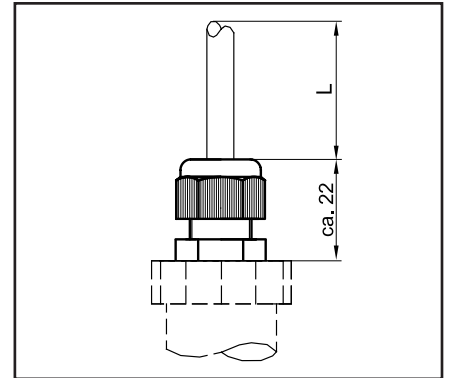
Electrical Connection
plug ISO 4400



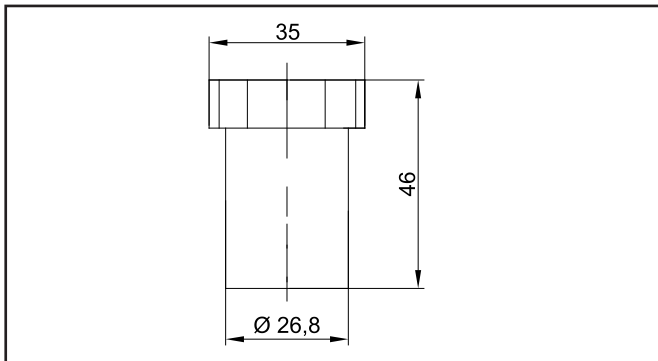
Electrical Connection
plug M12



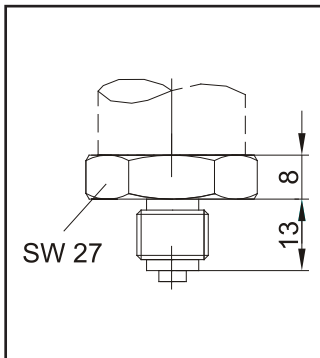
Electrical Connection
cable



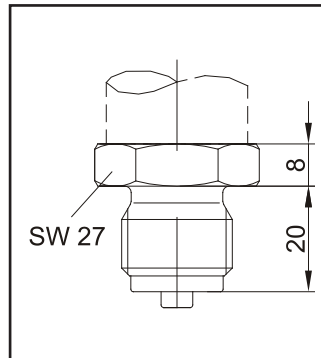
Body
Standard Version



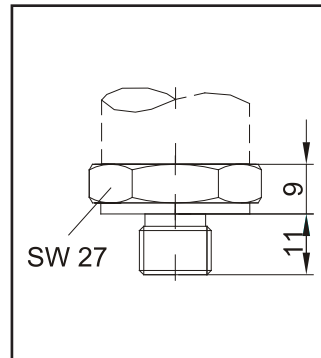
Process Connection
G 1/4 B (EN 837)



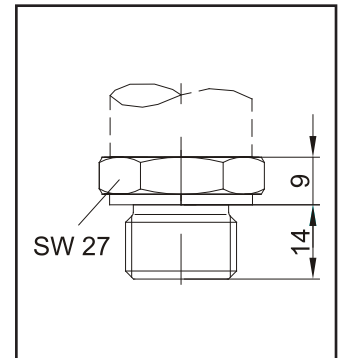
Process Connection
G 1/2 B (EN 837)



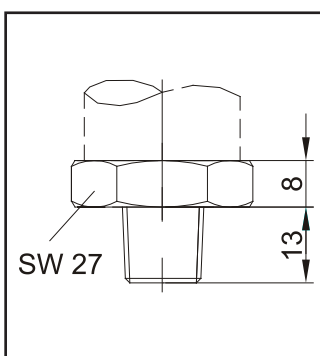
Process Connection
G 1/4 (DIN 3852)



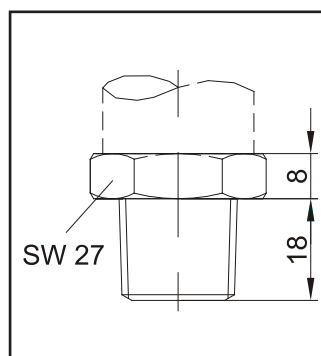
Process Connection
G 1/2 (DIN 3852)



Process Connection
1/4" NPT male (ASME B1.20)

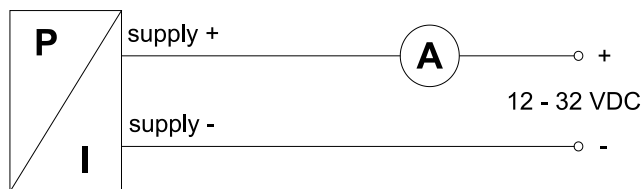


Process Connection
1/2" NPT male (ASME B1.20)

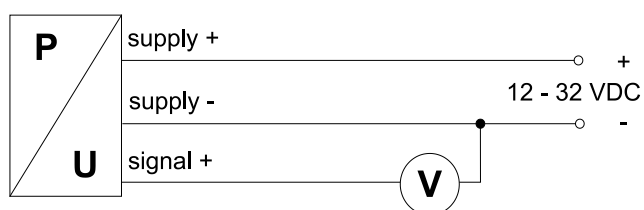


ELECTRICAL DATA

4 - 20 mA, 2-wire

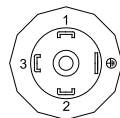


0 - 10 V, 3-wire

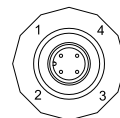


ELECTRICAL CONNECTION

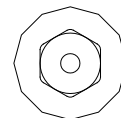
plug ISO 4400



plug M12



cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	4	4	5	C	-	0	x	-	x	x	x	x
Pressure Range	-1000...0 mbar								05					
	0 - 10 mbar								0G					
	0 - 20 mbar								0I					
	0 - 40 mbar								0J					
	0 - 60 mbar								10					
	0 - 100 mbar								11					
	0 - 160 mbar								12					
	0 - 250 mbar								13					
	0 - 400 mbar								14					
	0 - 600 mbar								15					
	0 - 1000 mbar								16					
Process Connection	1/4" BSP male (EN 837)										B			
	1/2" BSP male (EN 837)										D			
	G 1/4 (DIN 3852)										M			
	G 1/2 (DIN 3852)										N			
	1/4" NPT male (ASME B1.20)										I			
	1/2" NPT male (ASME B1.20)										J			
	1/4" BSP female (EN 837)										G			
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Further Options	no further options													O

INDUSENS Pressure Transmitter Model 501



- excellent price/performance ratio
- million times proven stainless steel sensor
- pressure ranges from -1...0 bar up to 0 - 600 bar
- relative or absolute pressure
- output signal 4 - 20 mA or 0 - 10 V
- accuracy up to $\leq 0,1\%$ FS
- **SIL2 approved version (optional)**

Description

The INDUSENS-501 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Operating Principle

INDUSENS-501 pressure transmitters are equipped with a stainless steel sensor cell.

The stainless steel sensor is equipped with a diaphragm which is in contact with the media. The room between the diaphragm and the sensor is filled a transmission fluid. The actual process pressure applied to the diaphragm is „transmitted“ to the sensor via the filling fluid. The pressure acting on the sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

Approvals

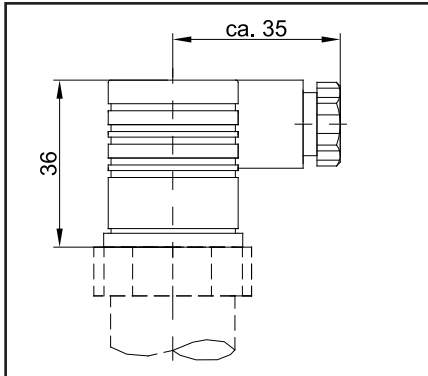
SIL

Safety Integrity Level (IEC 61508/61511)
SIL 2

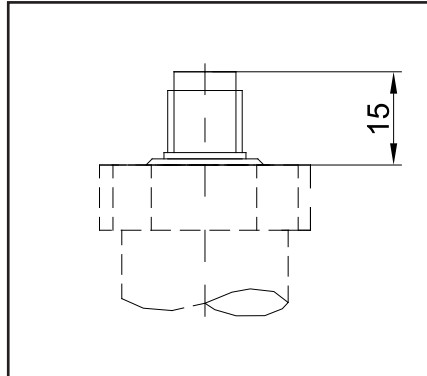
Technical Data	Standard	Option
Function	pressure transmitter with stainless steel sensor cell	
Low Pressure Ranges	0 - 100 mbar; 0 - 160 mbar; 0 - 250 mbar ; 0 - 400 mbar; 0 - 600 mbar (relative oder absolute)	
Pressure Ranges	0 - 1 bar; 0 - 1,6 bar; 0 - 2,5 bar; 0 - 4 bar; 0 - 6 bar; 0 - 10 bar; 0 - 16 bar; 0 - 25 bar; 0 - 40 bar (relative oder absolute)	
Vacuum Ranges	-1...0 bar	
Overpressure Safety	-1...0 bar: 2,5 bar 0 - 100 up to 0 - 400 mbar: 1 bar 0 - 600 up to 0 - 1000 mbar: 2,5 bar ≥ 0 - 1,6 bar up to ≤ 0 - 40 bar: at least 2,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (wetted)	Stainless Steel 1.4435 (AISI 316L)	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	FKM	without (fully welded)
Permissable Media Temperature	-20...+125°C	on request
Permissable Ambient Temperature	-25...+85°C	on request
Temperature Deviation	approx. 0,5% per 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	≤ 0,25% FS; ≤ 0,1% FS
typical response delay	≤ 5 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 150 g	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
SIL2 approved version		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see main catalogue chapter „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see main catalogue chapter „Accessories“		

DIMENSIONAL DRAWINGS

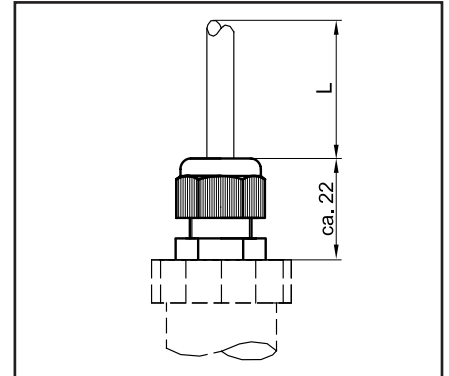
Electrical Connection
plug ISO 4400



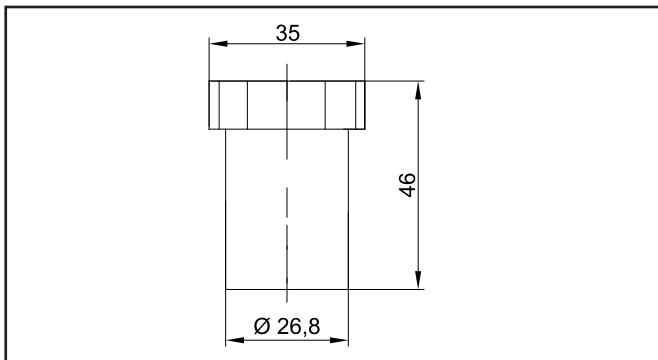
Electrical Connection
plug M12



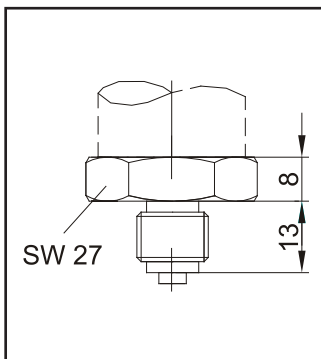
Electrical Connection
cable



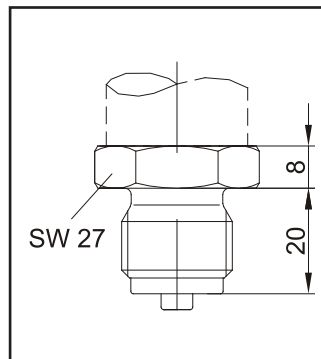
Body
Standard Version



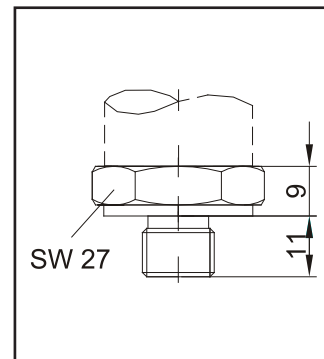
Process Connection
G 1/4 B (EN 837)



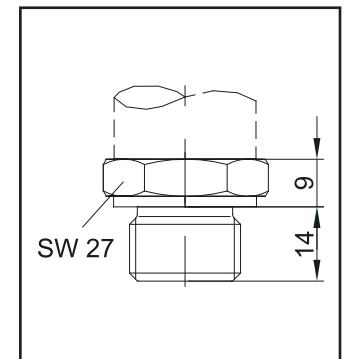
Process Connection
G 1/2 B (EN 837)



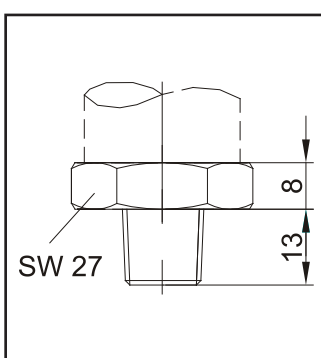
Process Connection
G 1/4 (DIN 3852)



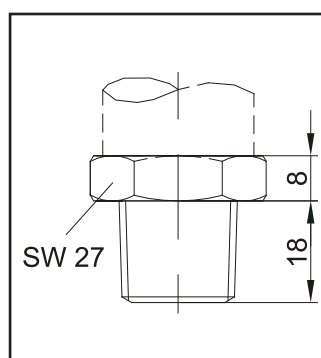
Process Connection
G 1/2 (DIN 3852)



Process Connection
1/4" NPT male (ASME B1.20)

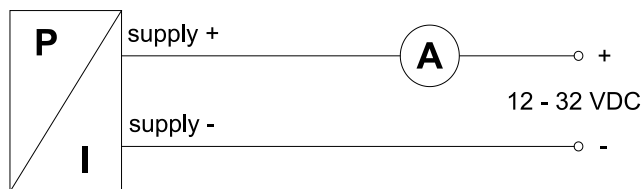


Process Connection
1/2" NPT male (ASME B1.20)

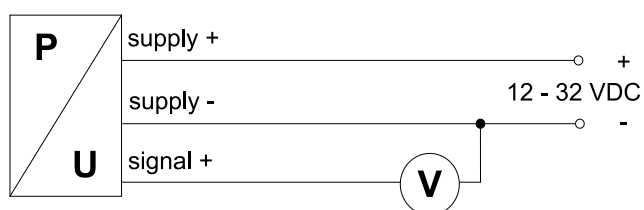


ELECTRICAL DATA

4 - 20 mA, 2-wire



0 - 10 V, 3-wire

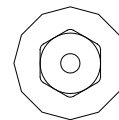
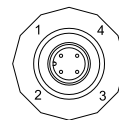
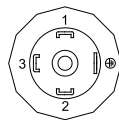


ELECTRICAL CONNECTION

plug ISO 4400

plug M12

cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	5	x	4	B	-	x	x	-	x	x	x	x
Accuracy	0,5% FS			4										
	0,25% FS			2										
Pressure	relativ							0						
	absolut							5						
Pressure Range	-1...0 bar							0	06					
	0 - 100 mbar								011					
	0 - 160 mbar								012					
	0 - 250 mbar								013					
	0 - 400 mbar								014					
	0 - 600 mbar								015					
	0 - 1 bar								20					
	0 - 1,6 bar								22					
	0 - 2,5 bar								23					
	0 - 4 bar								24					
	0 - 6 bar								25					
	0 - 10 bar								26					
	0 - 16 bar								27					
	0 - 25 bar								28					
	0 - 40 bar								29					
Process Connection	1/4" BSP male (EN 837)										B			
	1/2" BSP male (EN 837)										D			
	G 1/4 (DIN 3852)										M			
	G 1/2 (DIN 3852)										N			
	1/4" NPT male (ASME B1.20)										I			
	1/2" NPT male (ASME B1.20)										J			
	1/4" BSP female (EN 837)										G			
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Further Options	no further options													O
	SIL2 approved version													S
	further options as per comments													#

INDUSENS Pressure Transmitter Model 502



- excellent price/performance ratio
- million times proven stainless steel sensor
- pressure ranges from 0 - 60 bar up to 0 - 600 bar
- relative pressure
- output signal 4 - 20 mA or 0 - 10 V
- accuracy up to $\leq 0,1\%$ FS
- **SIL2 approved version (optional)**

Description

The INDUSENS-502 is a pressure transmitter for measuring pressure and vacuum of gaseous or liquid, also crystallizing or highly viscous media.

Operating Principle

INDUSENS-502 pressure transmitters are equipped with a stainless steel sensor cell.

The stainless steel sensor is equipped with a diaphragm which is in contact with the media. The room between the diaphragm and the sensor is filled a transmission fluid.

The actual process pressure applied to the diaphragm is „transmitted“ to the sensor via the filling fluid.

The pressure acting on the sensor is converted into a continuous standardized current or voltage signal, which is proportional to the pressure.

Approvals

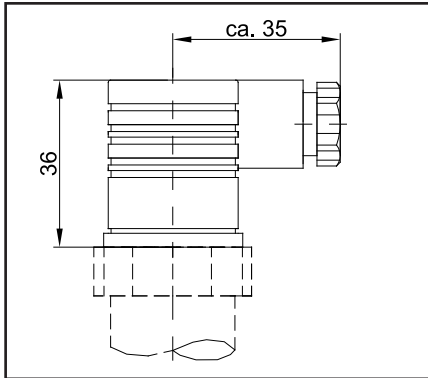
SIL

Safety Integrity Level (IEC 61508/61511)
SIL 2

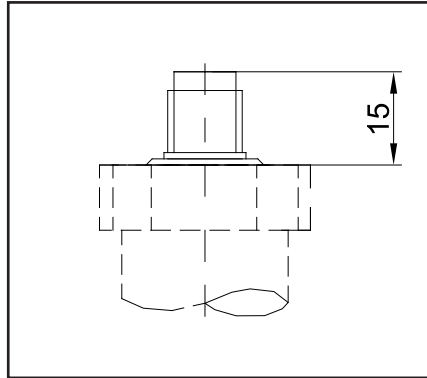
Technical Data	Standard	Option
Function	pressure transmitter with stainless steel sensor cell	
High Pressure Ranges	0 - 60 bar; 0 - 100 bar; 0 - 160 bar; 0 - 250 bar; 0 - 400 bar; 0 - 600 bar (relative)	
Overpressure Safety	≥ 0 - 60 bar up to ≤ 0 - 250 bar: at least 3x FS ≥ 0 - 400 bar: at least 1,5x FS	on request
Vacuum Safety	-1 bar	
Housing Material	Stainless Steel 1.4301 (AISI 304)	
Material Sensor (wetted)	Stainless Steel 1.4435 (AISI 316L)	
Material Process Connection (wetted)	Stainless Steel 1.4571 (AISI 316Ti)	on request
Material Sealing (wetted)	FKM	without (fully welded)
Permissible Media Temperature	-20...+125°C	on request
Permissible Ambient Temperature	-25...+85°C	on request
Temperature Deviation	approx. 0,5% per 20°C	on request
Accuracy (IEC 60770)	≤ 0,5% FS	≤ 0,25% FS; ≤ 0,1% FS
typical response delay	≤ 5 msec	
Process Connection	see dimensional drawings	
Electrical Connection	plug ISO 4400 (DIN 43650-A / EN 175301-803-A)	M12 plug; cable; others on request
Supply	12 - 32 VDC	
Output Signal	4 - 20 mA (2-wire)	0 - 10 V (3-wire)
Weight	approx. 150 g	
Protection	IP65 (IP67 for versions with plug M12 and cable)	
Further Options		
SIL2 approved version		
special designs		
Accessories		
Digital Indicators, Power Supply, Supply Isolation Amplifiers und Signal Processors see main catalogue chapter „Signal Processing“		
Mounting accessories, e.g. brackets, cock valves see main catalogue chapter „Accessories“		

DIMENSIONAL DRAWINGS

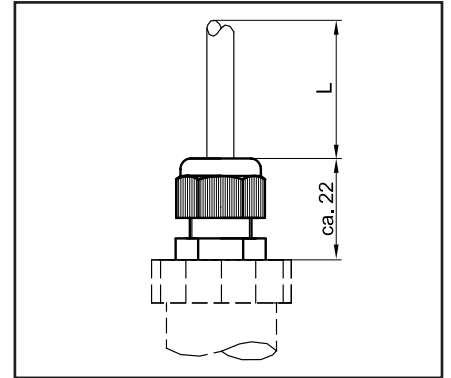
Electrical Connection
plug ISO 4400



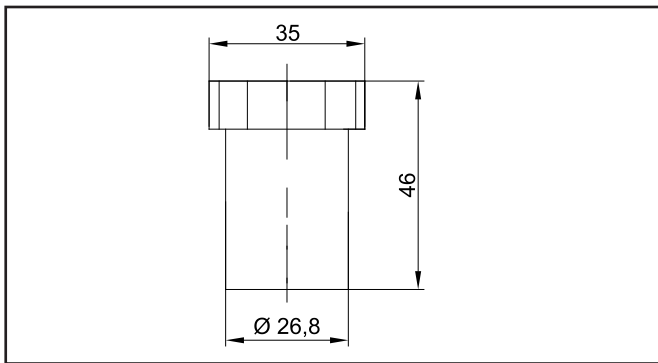
Electrical Connection
plug M12



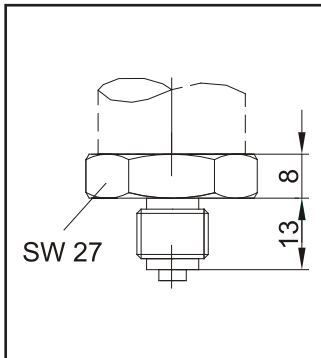
Electrical Connection
cable



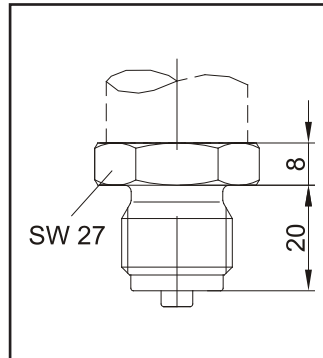
Body
Standard Version



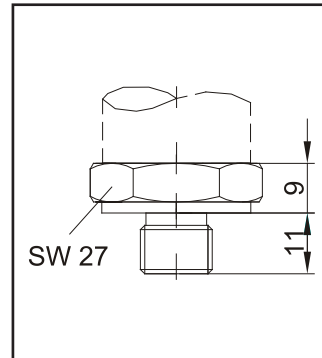
Process Connection
G 1/4 B (EN 837)



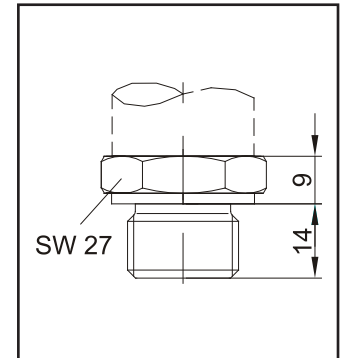
Process Connection
G 1/2 B (EN 837)



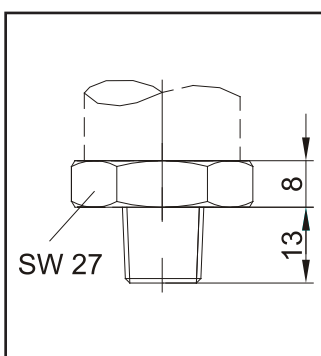
Process Connection
G 1/4 (DIN 3852)



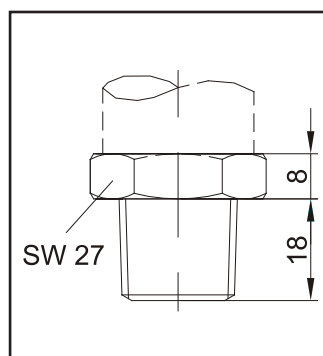
Process Connection
G 1/2 (DIN 3852)



Process Connection
1/4" NPT male (ASME B1.20)

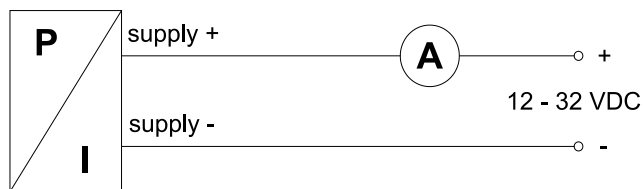


Process Connection
1/2" NPT male (ASME B1.20)

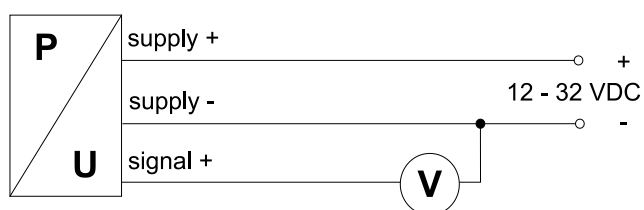


ELECTRICAL DATA

4 - 20 mA, 2-wire



0 - 10 V, 3-wire

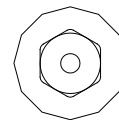
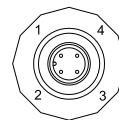
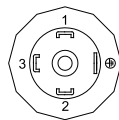


ELECTRICAL CONNECTION

plug ISO 4400

plug M12

cable



System	Connection	plug ISO4400	plug M12	cable
2-wire	supply +	1	1	white
	supply -	2	2	brown
	GND	GND	4	yell./green
3-wire	supply +	1	1	white
	supply -	2	2	brown
	signal +	3	3	green
	GND	GND	4	yell./green

PART NUMBERS

(most common options)

Part Number		S	5	x	4	B	-	0	x	-	x	x	x	x
Accuracy	0,5% FS			4										
	0,25% FS			2										
Pressure Range	0 - 60 bar								030					
	0 - 100 bar								031					
	0 - 160 bar								032					
	0 - 250 bar								033					
	0 - 400 bar								035					
	0 - 600 bar								184					
Process Connection	1/4" BSP male (EN 837)										B			
	1/2" BSP male (EN 837)										D			
	G 1/4 (DIN 3852)										M			
	G 1/2 (DIN 3852)										N			
	1/4" NPT male (ASME B1.20)										I			
	1/2" NPT male (ASME B1.20)										J			
	1/4" female (EN 837)										G			
Electrical Connection	plug ISO 4400											H		
	plug M12											M		
	cable 0,5 m											A		
	cable 1 m											B		
Output Signal	4 - 20 mA												A	
	0 - 10 V												B	
Further Options	no further options													O
	SIL2 approved version													S
	further options as per comments													#

CONVERSION TABLE FOR PRESSURE UNITS

	Standard International Units					Technical Units					
	mbar	bar	Pa	kPa	MPa	mm WC	m WC	kp/cm ²	atm	Torr	psi
Standard International Units	mbar	•	100	0,1	0,0001	10,197	10,197 x 10 ⁻³	1,0197 x 10 ⁻³	0,98692 x 10 ⁻³	0,75006	14,504 x 10 ⁻³
	bar	1.000	100.000	100	0,1	10,197 x 10 ³	10,197	1,0197	0,9869	750,06	14,504
	Pa	0,01	•	0,001	0,000001	0,10197	0,10197 x 10 ⁻³	0,10197 x 10 ⁻⁶	9,8692 x 10 ⁻⁶	7,5006 x 10 ⁻³	0,14504 x 10 ⁻³
	kPa	10	1.000	•	0,001	0,10197 x 10 ³	0,10197	10,197 x 10 ⁻³	9,8692 x 10 ⁻³	7,5006	0,14504
	MPa	10.000	1.000.000	1.000	•	0,10197 x 10 ⁶	0,10197 x 10 ³	10,197	9,8692	7,5006 x 10 ³	0,14504 x 10 ³
Technical Units	mm WS	98,067 x 10 ⁻³	98,067 x 10 ⁻⁶	9,8067 x 10 ⁻³	9,8067 x 10 ⁻⁶	•	10 ⁻³	10 ⁻⁴	96,784 x 10 ⁻⁶	73,556 x 10 ⁻³	1,4223 x 10 ⁻³
	m WS	98,067	98,067 x 10 ⁻³	9,8067 x 10 ³	9,8067 x 10 ⁻³	10 ³	•	10 ⁻¹	96,784 x 10 ⁻³	73,556	1,4223
	kp/cm ²	0,98067 x 10 ³	0,98067	98,067	98,067 x 10 ⁻³	10 ⁴	10	•	0,96784	735,56	14,223
	atm	1,0133 x 10 ³	0,10133 x 10 ⁵	0,10133 x 10 ³	0,10133	10,332 x 10 ³	10,332	1,0332	•	760	14,693
	Torr	1,3332	1,3332 x 10 ⁻³	0,10133 x 10 ³	0,13332 x 10 ⁻³	13,595	13,595 x 10 ⁻³	1,3595 x 10 ⁻³	1,3158 x 10 ⁻³	•	19,34 x 10 ⁻³
	psi	68,948	68,948 x 10 ⁻³	6,8948	6,8948 x 10 ⁻³	0,70307 x 10 ³	0,70307	0,70307 x 10 ⁻³	0,70307 x 10 ⁻⁶	51,715	•

INQUIRY CHECKLIST PRESSURE TRANSMITTERS (BY FAX TO +49-6262-92670-99)

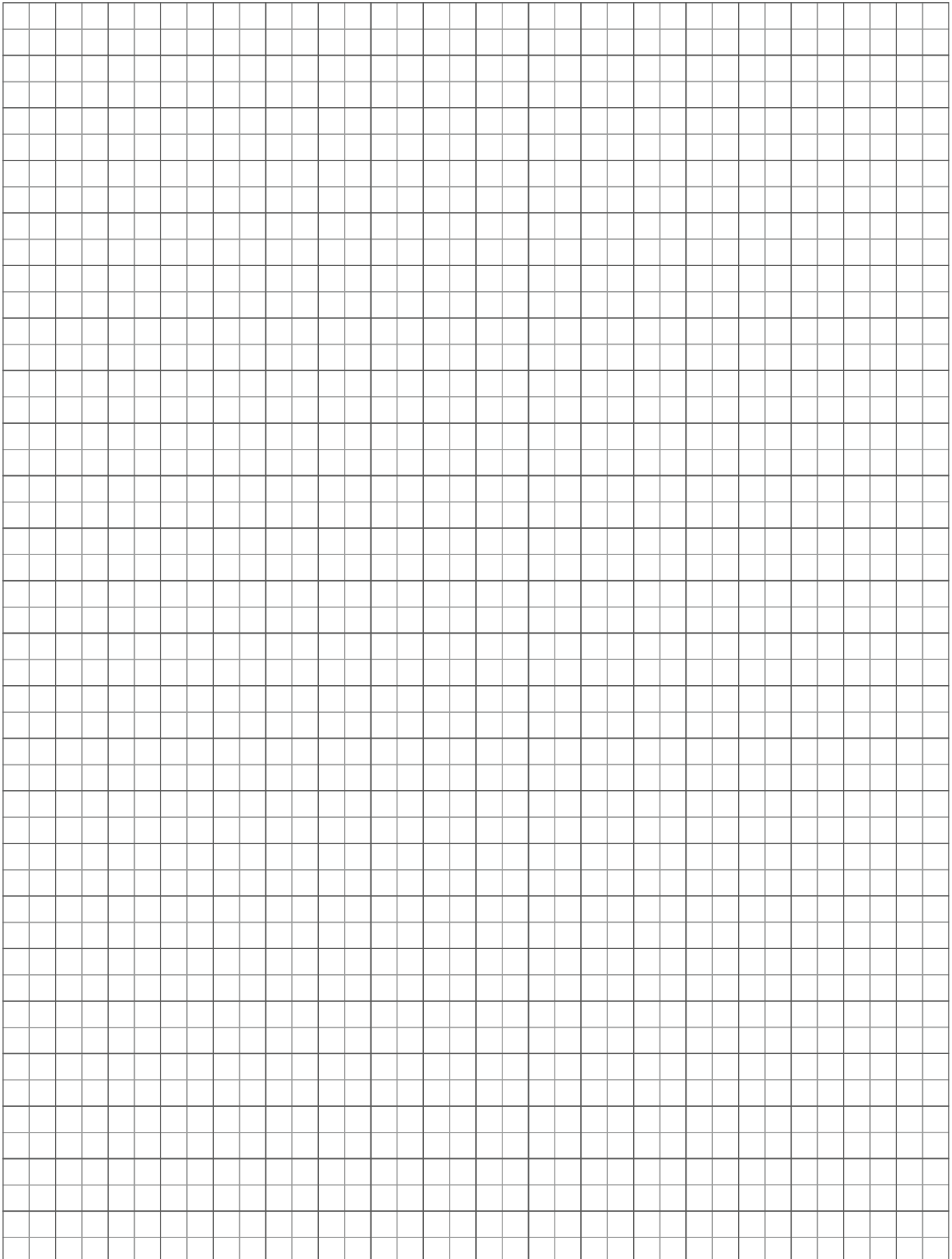
Company's name and address	contact person
	telephone, fax
inquiry no. / project no.	E-Mail
application	measured media
wetted parts material	housing material
media temperature T_{min} T_{max}	environmental temperatur T_{min} T_{max}
pressure load static: dynamic: from to	vacuum <input type="checkbox"/> Yes <input type="checkbox"/> No
special requirements	

Design pressure transmitter

model	explosion-proof version <input type="checkbox"/> no <input type="checkbox"/> EExi <input type="checkbox"/> EExd <input type="checkbox"/> _____
measuring principle <input type="checkbox"/> ceramics sensor <input type="checkbox"/> piezo-resistive sensor	accuracy [% FS] <input type="checkbox"/> 0,1 <input type="checkbox"/> 0,25 <input type="checkbox"/> 0,5 <input type="checkbox"/> 1,0
pressure range	output signal <input type="checkbox"/> 4 - 20 mA <input type="checkbox"/> 0 - 20 mA <input type="checkbox"/> 0 - 10 V <input type="checkbox"/> _____
process connection <input type="checkbox"/> G <input type="checkbox"/> NPT <input type="checkbox"/> chemical seal <u>see checklist chemical seals</u> <input type="checkbox"/> others _____ <input type="checkbox"/> 1/4 <input type="checkbox"/> 1/2 <input type="checkbox"/> male <input type="checkbox"/> female	
electrical connection <input type="checkbox"/> plug ISO4400 <input type="checkbox"/> cable _____ meter <input type="checkbox"/> others _____	
accessories <input type="checkbox"/> isolation amplifier <input type="checkbox"/> digital indicator for transmitter mount <input type="checkbox"/> supply isolation amp. <input type="checkbox"/> digital indicator for rack mount <input type="checkbox"/> others _____	
other	
Quotation for pieces _____ <input type="checkbox"/> annual demand <input type="checkbox"/> single demand <input type="checkbox"/> project demand <input type="checkbox"/> spare parts	

This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin, dark gray lines. There are no margins, text, or other markings on the page.

FOR YOUR NOTES



FURTHER PRODUCTS FROM PINTER



PRESSURE SWITCHES

are signal elements which are used for pressure measuring in pressure lines for gases, vapours, liquids or suspensions. The switch points are transformed into an electric or pneumatic output signal which is necessary for the control and regulation of processes, e.g. safety and alarm devices.



PRESSURE GAUGES

are mechanical pressure indicators. The actual process pressure acts on a measuring element and deforms it. The deformation is converted into a 270° rotating motion by the attached movement.

Due to the electricity-free function, pressure gauges even remain fully functional in total damage occurrence.



PRESSURE GAUGES

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Due to the electricity-free function, pressure gauges even remain fully functional in total damage occurrence.



DIAPHRAGM SEALS

are mechanical process separating elements which are mounted on measuring instruments directly or via capillary; with diaphragm seals the measuring instrument is separated from the actual process to protect the instrument from hot, polluted, aggressive or crystallizing media.



INDICATORS AND SIGNALPROCESSORS

are interfaces between measuring instruments and the process control. Supply isolation amplifiers provide pressure transmitters with the required operating voltage. With graphics displays most diverse information can be visualized and archived among other things. For safety relevant functions PINTER offers proven and tested signal processors with SIL 2 classification.



SYSTEM SOLUTIONS

PINTER is a specialist for industrial measurement and controls and offers a suitable instrument including necessary accessories for almost any application:

From standard to the tailor-made solution for your application. PINTER develops and manufactures complete measuring and control systems for you - competently, efficiently and with most modern tools and machinery.

IMPRINT

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