Pressure Measurement Technology

Type:
Precont S70

Digital pressure sensor with special diaphragm seal for all areas of process engineering in temperature applications from -90°C to +400°C

Description

The Precont S70 is a pressure sensor with special diaphragm seals for use in high-temperature and hygienic applications. Due to the temperature range up to 400°C, the devices are suitable for use in systems with very high process temperatures.

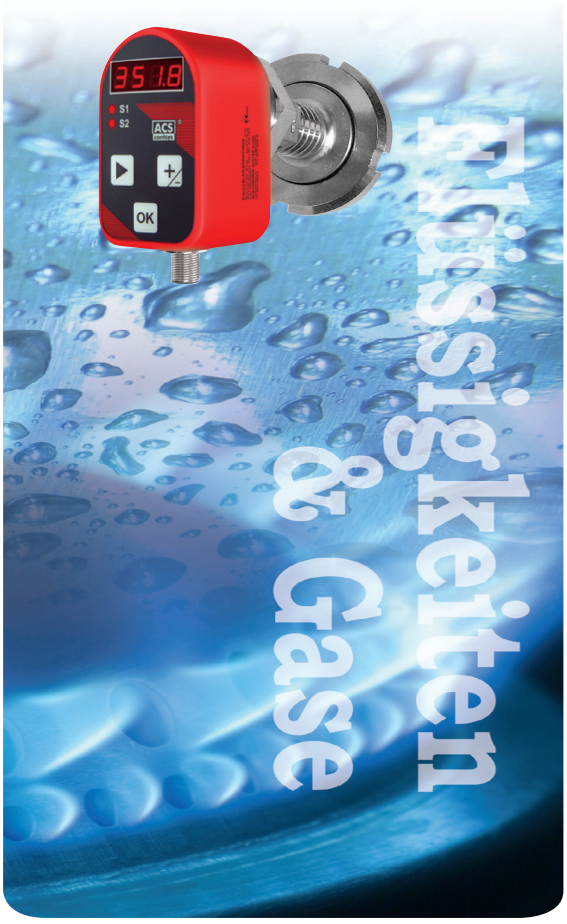
The system pressure is applied to the metal diaphragm of the diaphragm seal and is transmitted via an oil filling to the ceramic or metallic diaphragm of the respective measuring cell located behind it.

This results in a significant extension of the permissible media temperature range up to -90...+400°C.

The oil filling can be adapted to the respective application and ranges from medical white oils to food oils and high-temperature oils.

The Precont S70 can also be supplied with a tube diaphragm seal. These are suitable for flowing and highly viscous media.

Since the diaphragm seal is part of the process line, there are no dead spaces or other obstacles in the direction of flow.



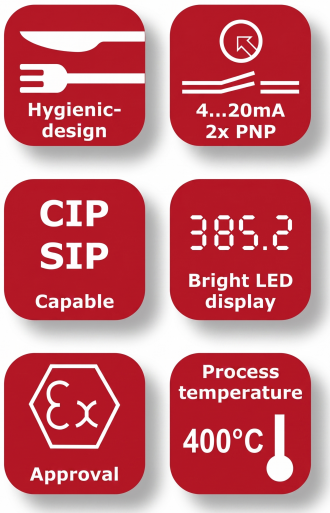
Application

- Highly accurate pressure measurement, relative and absolute, up to 400 bar
- Media temperatures from – 90°C to +400°C for use in high-temperature areas
- Connection housing made of stainless steel or PBT with terminal compartment or M12x1 plug
- 2 PNP switching outputs or 2- or 3-wire electronics
- Can be used as a pressure switch and pressure transmitter

Your Benefits

- Wide range of applications

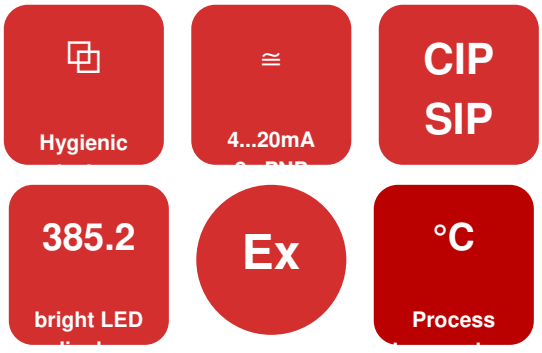
Special Features



- Electronics ***rotatable*** by 330 degrees
- ***Quick adjustment*** via key combinations and menu-guided adjustment via LED display
- Bright LED display - readable from a long distance
- ***Password function*** to protect settings from changes
- Also suitable for flowing or highly viscous media
- A variety of process connections and tube diaphragm seals possible

Place Sensor Image Here

Special Features



Technical Data

Technical Data	
Supply voltage:	14.5...45V DC for output signal 4...20mA / with Display / Ex 14.5...30V DC 10.5...45V DC for output signal 4...20mA / without Display / Ex 10.5...30V DC 14.5...45V DC for output signal 0...10V / Ex 14.5...30V DC
Current consumption:	≤ 22 mA; for 2-wire 4...20mA PNP-switching outputs idle ≤ 10 mA; for 3-wire 0...10V PNP-switching outputs idle
PNP Switching Output	
Function:	PNP-switching to +Vs
Output current:	≤ 250 mA current limited, short-circuit proof
Measurement Accuracy	
Characteristic deviation:	≤ ±0.2% / 0.5% FS, depending on sensor element
Long-term drift:	≤ ±0.2% / year non-cumulative
Temperature deviation:	depending on diaphragm seal diameter, sensor element, filling liquid and diaphragm seal
Materials	
Diaphragm: **(wetted parts)**	Steel 1.4435 (316L) optional e.g. Steel 1.4571 (316Ti); Hastelloy; Titanium; Coating Gold/Rhodium etc. depending on diaphragm seal used
Process connection: **(wetted parts)**	Steel 1.4435 (316L) optional e.g. Steel 1.4571 (316Ti); Hastelloy; Titanium; depending on diaphragm seal used
Connection housing:	CrNi-Steel / PBT Polybutylene terephthalate / PP - Polypropylene / POM - Polyoxymethylene (Delrin®)
Environmental Conditions	
Ambient temperature:	-40°C...+85°C
Process temperatures:	-90°C...+400°C
Process pressure ranges:	-1 bar...400 bar
Turn-Down:	10:1
Protection class:	IP65 / IP67 EN/IEC 60529

Connection

Signal 4...20 mA
Standard wire colors M12:
1 BN (brown) = L+
3 BU (blue) = L-
(2-wire connection)

Signal 4...20 mA / 2x PNP switching output
Standard wire colors M12:
1 BN (brown) = L+
2 WH (white) = S2 (Switch 2)
4 BK (black) = S1 (Switch 1)
3 BU (blue) = L-

Signal 0...10 V
Standard wire colors M12:
1 BN (brown) = L+
5 GY (gray) = 0...10V
3 BU (blue) = L-

Signal 0...10 V / 2x PNP switching output
Standard wire colors M12:
1 BN (brown) = L+
5 GY (gray) = 0...10V
2 WH (white) = S2
4 BK (black) = S1
3 BU (blue) = L-

Dimensional Drawings

Connection Housings

Electrical Connection Type S - Plug M12
Material Connection Housing Type A - PBT

[Dimensions referenced from technical drawing]

Electrical Connection Type A - Terminal Compartment
Material Connection Housing Type C (CrNi-Steel) / Type D (POM) / Type E (PP)

[Dimensions referenced from technical drawing]

Temperature Decouplers

Cooling fins up to 150°C

Standard up to 150°C / 250°C

Remote line (Capillary)

Adapter up to 100°C for Process connections Dx, Mx and Tx

Process Connections Overview

Type	Description	Typical Sizes
Type Gx	Thread ISO 228-1	G1/2" B, G3/4" B, G1" B, G1 1/4" B, G2" B
Type Fx	Flange DIN EN 1092-1, B1	DN 25, DN 40, DN 50
Type Rx	Tube Diaphragm Seal DIN 11851	DN 25, DN 32, DN 40, DN 50, DN 65, DN 80, DN 100
Type Mx	Milk Pipe DIN 11851	DN 25, DN 40, DN 50
Type Tx	Tri-Clamp	1" (DN25), 1 1/2" (DN38), 2" (DN51)
Type Vx	Varivent®	DN 25 (Type F), DN 40-125 (Type N)
Type Dx	DRD	DN 65 mm

Ordering Code

Version

S70	Standard
ExS70	ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDCS70	ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb *(only for Material Connection housing Type C - CrNi-Steel)*

Process Connection

G1	G½" B, ISO 228-1, DIN 3852-A
G2	G¾" B, ISO 228-1, DIN 3852-A
G3	G1" B, ISO 228-1, DIN 3852-A
G4	G1 ¼" B, ISO 228-1, DIN 3852-A
G5	G2" B, ISO 228-1, DIN 3852-A
P1	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN25, PN10-40
P2	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN40, PN10-40
P5	Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN50, PN10-40
M2	Milk pipe DIN 11851, DN25, PN40
M4	Milk pipe DIN 11851, DN40, PN40
M5	Milk pipe DIN 11851, DN50, PN25
V1	Varivent® N, DN40, PN14
D1	DRD DN65, d65 mm, PN25
T1	Tri-Clamp 1"/DN25, PN16/40
T2	Tri-Clamp 1 ½"/DN38, PN16/40
T3	Tri-Clamp 2"/DN51, PN16/40
R1	Tube diaphragm seal Milk pipe DIN 11851, DN25, PN40
R2	Tube diaphragm seal Milk pipe DIN 11851, DN32, PN40
YY	Others

Process Temperature

A	Standard, -20°C...+100°C Silicone oil
B	Extended, -20°C...+150°C, Temperature decoupler, White oil (Paraffin oil) (FDA) silicone-free
C	Extended, -40°C...+250°C, Temperature decoupler, Silicone oil G03
D	Extended, 0°C...+400°C, Remote line, HT-Oil
Y	Others (Temperature range, Reference temperature, Filling liquid)

Transmitter Electronics

A	4..20 mA, 2-Wire electronics, with display, 2 PNP switching outputs
B	4..20 mA, 2-Wire electronics, with display
C	4..20 mA, 2-Wire electronics, without display, adjustment via buttons
D	0..10 V, 3-Wire electronics, with display, 2 PNP switching outputs
E	0..10 V, 3-Wire electronics, with display
G	0..10 V, 3-Wire electronics, without display, adjustment via buttons

Connection Material

V	Steel 1.4404/316L
Y	Others

Material Connection Housing

(For Type XD only Material Steel possible)

A	PBT (Polybutylene terephthalate) (not for terminal compartment)
C	CrNi-Steel
D	POM (Polyacetal - Delrin®) - only with terminal compartment housing

Pressure Range

01	0..100 mbar	**03**	0..400 mbar
02	0..200 mbar	**04**	0..600 mbar

05	0..1 bar	**13**	0..40 bar
06	0..1.6 bar	**14**	0..60 bar
07	0..2.5 bar	**15**	-100..0 mbar
08	0..4 bar	**16**	-1..0 bar
09	0..6 bar	**17**	-1..1 bar
10	0..10 bar	**18**	-100..+100 mbar
11	0..16 bar	**YY**	Special measuring range
12	0..20 bar		

Pressure Variant

R	Relative pressure
A	Absolute pressure

Measuring System - Accuracy

2	Ceramic 96%, capacitive / 0.2% ≤ 60 bar
4	Metal, Strain gauge thin film / 0.5% ≥ 100 bar

Sensor Connection

S	Plug M12x1
K	Cable 2 m
A	Terminal compartment housing

Precont® [S70 - _ _ _ _ _ _ _ _ _ _] ← Ordering Code Example

Accessories

Order number/Version	Description
BKZ0412-VA	Mating connector, VA-Nut
BKZ0512-VA	Mating connector, VA-Nut (for 0...10 V)
LKZ0405PUR-AS	Connection cable 5 m, 4-pin
LKZ0410PUR-AS	Connection cable 10 m, 4-pin