

Pressure transmitter UNIVERSAL

for diaphragm seal operation

Type series CC102 ./CC202 .



Application area

- Food industry
- Pharmaceutical industry
- Biotechnology

Technical Data

Housing designs

Standard housing with right angle plug

material: st. steel mat.-no. 1.4301 (304)
 degree of protection: IP 65
 silicon cover plate for trimming potentiometers.
 Right angle plug as per DIN EN 175301-803-A
 (DIN 43650, form A) with cable gland M16x1.5
 mm, cable diameter 4...10 mm.
 Inner chamber aeration for measuring ranges
 ≤ 10 bar.

Field housing, solid design

material: st. steel mat.-no. 1.4301 (304)
 degrees of protection:
 standard

- IP 65, inner chamber aeration via
 integrated sintered filter, only for excess
 pressure measuring ranges ≤ 10 bar.

Option:

IP 67, inner chamber aeration via
 connection cable for excess pressure
 measuring range ≤ 10 bar.

Screwable cover ring with O-ring seal for the
 externally accessible trimming potentiometers.

Screwable cover for connection chamber with
 O-ring thread protector.

Connection terminals 4 mm².

Cable gland M16x1.5 for cable diameter 4.5...10
 mm, material polyamide.

Process connection

diaphragm seal systems
 see product range D5

Measuring system

piezoresistive measuring bridge

Material

socket: st. steel mat.no. 1.4404 (316L)

Weights

standard housing: approx. 200 g
 field housing: approx. 750 g
 without diaphragm seal

Storage temperature range

-25...+80 °C

Limiting temperature range

-25...+70 °C

Rated temperature range

-10...+70 °C

Temperature influence

on zero point: ≤ 0.03 % of meas. span /K
 on meas. span: ≤ 0.03 % of meas. span /K

Auxiliary power supply

standard version:

- nominal voltage 24 V DC
- function range
- 2-wire circuitry 14...30 V DC
- 3-wire circuitry 16...30 V DC
- max.permiss.operating voltage 30 V DC

Features

- Measuring ranges 0...160 mbar to 0...400 bar rel.
 0...0.4 bar to 0...25 bar abs
- Piezoresistive sensor element
- Diaphragm seal operation with reduced inner volume
- Zero point and measuring span can be adjusted
 externally by means of a potentiometer
- Measuring system overload protected
- Stainless steel housing as standard or field housing
- Degree of protection IP 65, option: IP 67
- Output signal: 4...20 mA, option: 0...20 mA, 0...10 V DC

Options

- Explosion protection

Application

The analog pressure transmitter UNIVERSAL is suited for relative and absolute pressure measurement. Because of the reduced inner volume of the pressure chamber the transmitter is especially suited for connection to diaphragm seals. The diaphragm seal can be connected directly, via a capillary or via a temperature decoupler. For further information see diaphragm seal data sheets D5.

Ex design:

· permiss. voltage range of 2-wire circuitry
 15...30 V DC

Ex design:

· permiss. voltage range of 3-wire circuitry
 16...30 V DC

Standard measuring ranges

see order details

Overload limits UE

for short-time overload, see order details

Overload influence

≤ 0.1 % f.s.

Output signal

4...20 mA, 2-wire circuitry, standard.
 Further possibilities see order details

Test output (with field housing only)

non interruptible output current measurement
 via integrated LOC diode

Current limitation in output signal

max. output current approx. 30 mA

Supply voltage influence

≤ 0.2 % f.s. / 10 V

To be continued on page 2

Linearity error incl. hysteresis
 ≤ 0.3 % f.s. (limit point calibration)

Adjustable range
 zero point and measuring span
 approx. ± 10 %

Response time
 ≤ 20 ms

Ex-approval
 The limit values detailed in the EC-Type
 Examination Certificate are to be observed!

EC-Type Examination Certificate
 TÜV 02 ATEX 1971 X and
 IECEx TUN 04.0008X
 type of ex-protection:

II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
 II 2G Ex ia IIC T4/T5/T6 Gb

IECEX TUN 04.0008X
 type of ex-protection:
 Ex ia IIC T4/T5/T6 Ga/Gb
 Ex ia IIC T4/T5/T6 Gb
 Ex ia I Ma

Since the intrinsically safe circuits are
 connected with the earth potential for safety
 reasons, potential equalization has to exist
 in the complete course of the erection of the
 intrinsically safe circuits.

Ambient temperatures
 II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
 Ex ia IIC T4/T5/T6 Ga/Gb

Ta [°C]	TM [°C]	temperature class
70	40	T6
70	60	T5
70	60	T4

Ambient temperatures
 II 2G Ex ia IIC T4/T5/T6 Gb
 Ex ia IIC T4/T5/T6 Gb

Ta [°C]	TM [°C]	temperature class
70	55	T6
70	70	T5
70	70	T4

Ambient temperatures Ex ia I Ma:
 Ta = Tm 70°C max

Electrical data
 Sum of maximum values in the intrinsically
 safe circuits

U_i = 30 V
 I_i = 100 mA
 P_i = 0,7 W

The table shows the values for different
 pressure transmitter signals:

signal mode	Ci [nF]	Li [µH]
2-wire 4...20 mA	33	20
3-wire 0(2)...10 V	43	30
3-wire (0)4...20 mA	43	30

Caution:
 Make sure that there is equipotential bon-
 ding along the entire wiring run both inside
 and outside the explosion hazardous area.

Switch off device if it is installed in zone 0
 and in temperature class T5 and T6 and it
 fails!

Burden
 - current output
 2-wire circuitry
 standard version $R_a = \frac{U_b - 14 V}{20 mA}$ (KOhm)
 with explosion protection $R_a = \frac{U_b - 15 V}{20 mA}$ (KOhm)
 - voltage output
 a current of 20 mA can be obtained in the
 case of devices with power output.

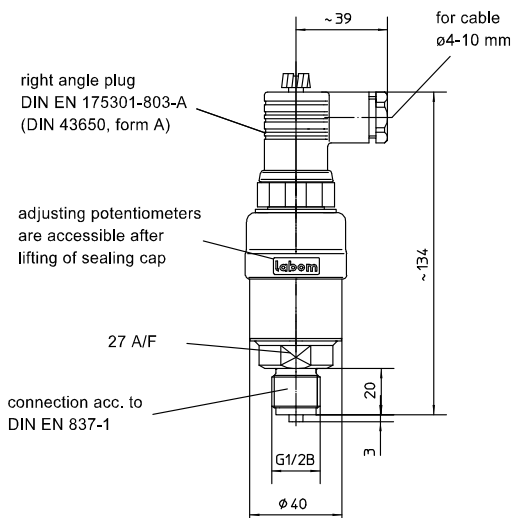
Burden influence
 for 500 Ohm burden of change: ≤ 0.1 % f.s.

EMC-Test
 - noise immunity as per EN 50082,
 section 2, March 95 issue for industry
 - emitted interference as per EN 50081,
 section 1, 1993 issue for residential and
 industrial areas

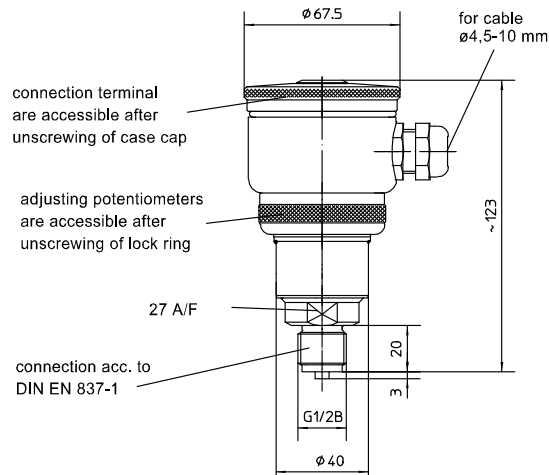
**Information on other models see order
 details or upon request.**

Dimensions

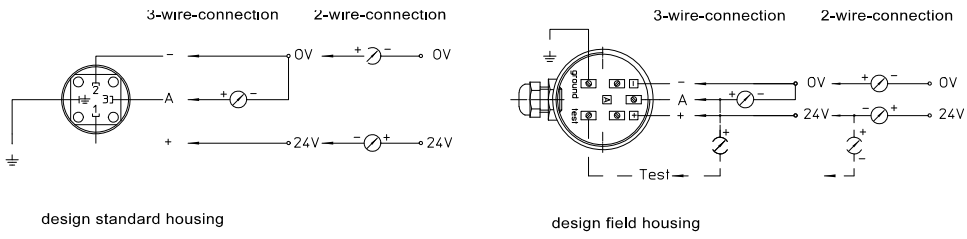
design standard housing



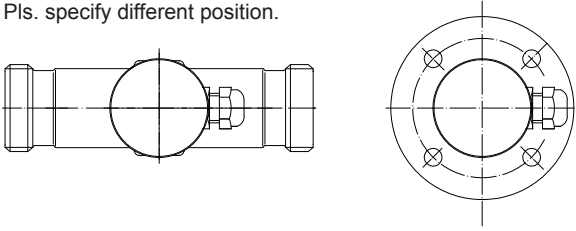
design field housing



Connection diagram

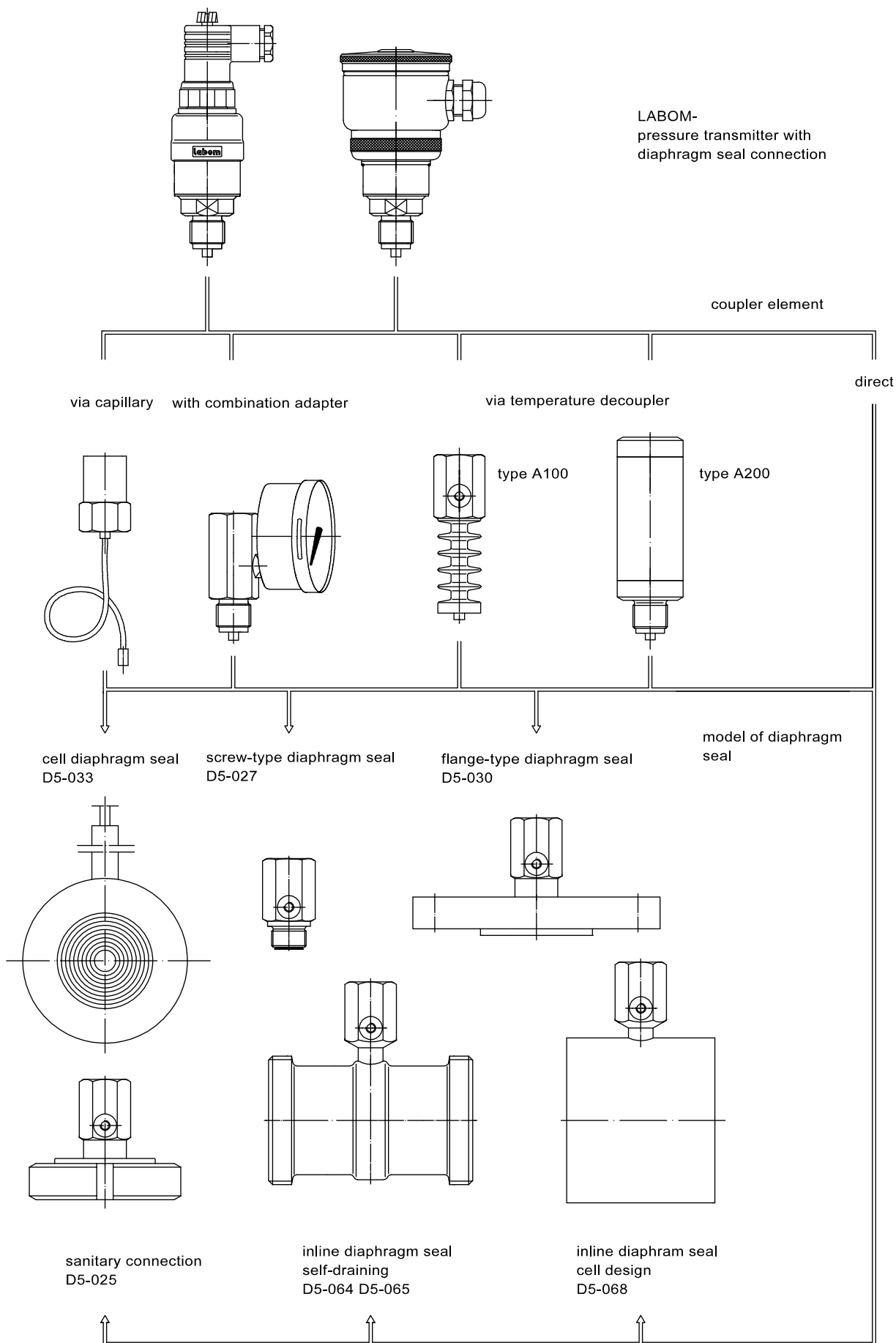


Standard position of el. connections.
Pls. specify different position.







Design

different models of diaphragm seals
with representation of usual device connections



Order details

Pressure transmitter UNIVERSAL for diaphragm seal operation					
design	· standard housing				CC102 .
	· field housing				CC202 .
version	· standard				0
	· explosion protection, type of ex-protection s. below				1
measuring range		overload protection UE bar ¹			
	-1...0.6 bar ⁴	10			A1087
	-1...1.5 bar ⁴	10			A1088
	-1...3 bar ⁴	16			A1089
	-1...5 bar ⁴	30			A1090
	-1...9 bar ⁴	30			A1091
	-1...15 bar ⁴	30			A1092
	0...160 mbar	1			A1009
	0...250 mbar	1			A1010
	0...0.4 bar	3			A1051
	0...0.6 bar	3			A1052
	0...1 bar	3			A1053
	0.2...1 bar	10			A1080
	0...1.6 bar	10			A1054
	0...2.5 bar	10			A1055
	0...4 bar	20			A1056
	0...6 bar	60			A1057
	0...10 bar	60			A1058
	0...16 bar	60			A1059
	0...25 bar	60			A1060
	0...40 bar	100			A1061
	0...60 bar	200			A1062
	0...100 bar	200			A1063
	0...160 bar	250			A1064
	0...250 bar	500			A1065
	0...400 bar	500			A1066
	0...0.4 bar abs	3			B1051
	0...0.6 bar abs	3			B1052
	0...1 bar abs	3			B1053
	0...1.6 bar abs	10			B1054
	0...2.5 bar abs	10			B1055
	0...4 bar abs	10			B1056
0...6 bar abs	60			B1057	
0...10 bar abs	60			B1058	
0...16 bar abs	60			B1059	
0...25 bar abs	60			B1060	
output signal	· 4...20 mA, 2-wire				H1
	· 0...20 mA, 3-wire				H2
	· 0...10 V, 3-wire				H4
	· 0...5 V, 3-wire				H6
additional features (to be indicated in case of need, only)					
type of ex-protection (for ex-protection only)	·  II 2G Ex ia IIC T4 Gb				S69
	·  II 2G Ex ia IIC T5/T6 Gb, standard				S68
	·  II 1/2G Ex ia IIC T4 Ga/Gb				S62
	·  II 1/2G Ex ia IIC T5/T6 Ga/Gb				S66
	IECEX	· Ex ia IIC T4/T5/T6 Ga/Gb			
	· Ex ia IIC T4/T5/T6 Gb				
	· Ex ia I Ma				
degree of protection ³ (field housing)	· IP 65 (standard) for measuring ranges ≤ 16 bar ⁵				T2
	· IP 67 ²				T1
Order code (example):			↓	↓	↓
			CC1020	A1010	H4

¹ special excess pressure protection (UE) upon request

² aerated cable with < 10 bar is required

³ design field housing only

⁴ negative relative pressure ranges (e.g. -1...+1 bar) are adjusted at works to 0...100%, e.g. 4...20mA.

Temporary operation up to -1 bar at room temperature and continuous operation up to -500 mbar at max. 50°C is admissible.

Long-term vacuum measurements at temperatures above +50°C may cause changes in the properties of the measurement device.

Vacuum-proof designs are available upon request

⁵ not valid for absolute pressure