Pressure transmitter COMPACT

for diaphragm seal operation, robust

Type series CC60 . . -C

Features

- Measuring ranges 0...250 mbar up to 0...400 bar
- Linearity error including hysteresis <+ 0.2 % f.s.
- Piezoresistive measuring system
- Separating foil from stainless steel or special materials
- Completely encapsulated electronics
- Stainless steel housing as standard or field housing
- Degree of protection IP 65, IP 67 option
- Variuous output signals
- Process temperature up to 200 °C

Options

- Explosion protection for gases
- Classification per SIL 2
- Inspection certificate: material certificate as per EN 10204-3.1

Application

The pressure transmitter COMPACT acts as a highly accurate converter of pressure measurements to load-independent current signals. Because of various variants of process connections and materials these transmitters are especially suited for pressure measurement with aggressive, highly viscous, solidifying or crystallizing media.The completely welded stainless steel housing can be designed up to protection type IP 67. The use of temperature decouplers means that the COMPACT pressure transmitter can be used for process temperatures up to 200 °C.

Application area

· Chemical industry
· Petrochemical industry

Technical Data

Case design
Designs
· field housing IP 65 or IP 67, with cable gland
· right-angle plug per DIN EN 175301-803-A (DIN 43650 Form A), IP 65
· cable connection, IP 67
· circular connector M12, IP 65
case material stainless steel
union nut: polyamide (with plug connector or cable connection for electr. connection)
electronics encapsulated with silicone.
Inner chamber aeration for measuring ranges < 16 bar over case thread or connection cable (depending on design)

Process connection
see page 3 and order code for variants
material-Nr.: 1.4404 (316L) for the sleeves

Temperature ranges
ambient temperature range: -25...+70 °C
storage temperature range: -10...+90 °C
process temperature: see order details

Measuring ranges/overrange limits
see order details
intermediate measuring ranges upon request

Response time
≤ 20 ms

Measuring accuracy
linearity error incl. hysteresis: <+ 0.2 % f.s.
(<+ 0.3 % f.s. for measuring ranges ≤ 0...60 bar)
fixed-point adjustment
accuracy of adjustment: <± 0.2 % f.s.
temperature effect im compensated temperature range: 0...50°C
a) case
- zero point < 0.2 %/10 K f.s.
- span < 0.2 %/10 K f.s.

b) process connection (diaphragm seal) depending on design

flat diaphragm	seal zero error
DN 25/1"	4.8 mbar/10 K
DN 32/1 1/2"	2.3 mbar/10 K
DN 40	1.6 mbar/10 K
DN 50/2"	0.6 mbar/10 K
inline diaphragm	seal zero error
DN 25/1"	9.5 mbar/10 K
DN 32/1 1/2"	4.1 mbar/10 K
DN 40	3.9 mbar/10 K
DN 50/2"	3.9 mbar/10 K

The specified zero error for the process connection is a guide value for a standard design. We can provide a detailed system calculation upon request. Systems with reduced diaphragm seal errors are also available.

Auxiliary energy supply
standard design:
· nominal voltage 24 V DC
· function range 6...30 V DC
· max. allowable operating voltage 30 V DC

Supply voltage influence
≤ 0.01 % f.s. / V

Output signal
4...20 mA, 2-wire technology
0...20 mA, 3-wire technology
4...20 mA, 3-wire technology
0...10 V, 3-wire technology

Current limitation in output signal
max. output current approx. 30 mA

Adjusting range
approx. ± 5 % f.s.; zero point and measuring span separately adjustable

Burden
2-wire circuitry
standard design $R_a = \frac{U_B - 6\ V}{20\ mA}$ (KOhm)
U_B= operating voltage
R_a= max. permissible burden resistance (incl. lead)

Functional safety
EN 61508, classification per SIL 2,
TÜV-Reg.-No. 44 799 13190204

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

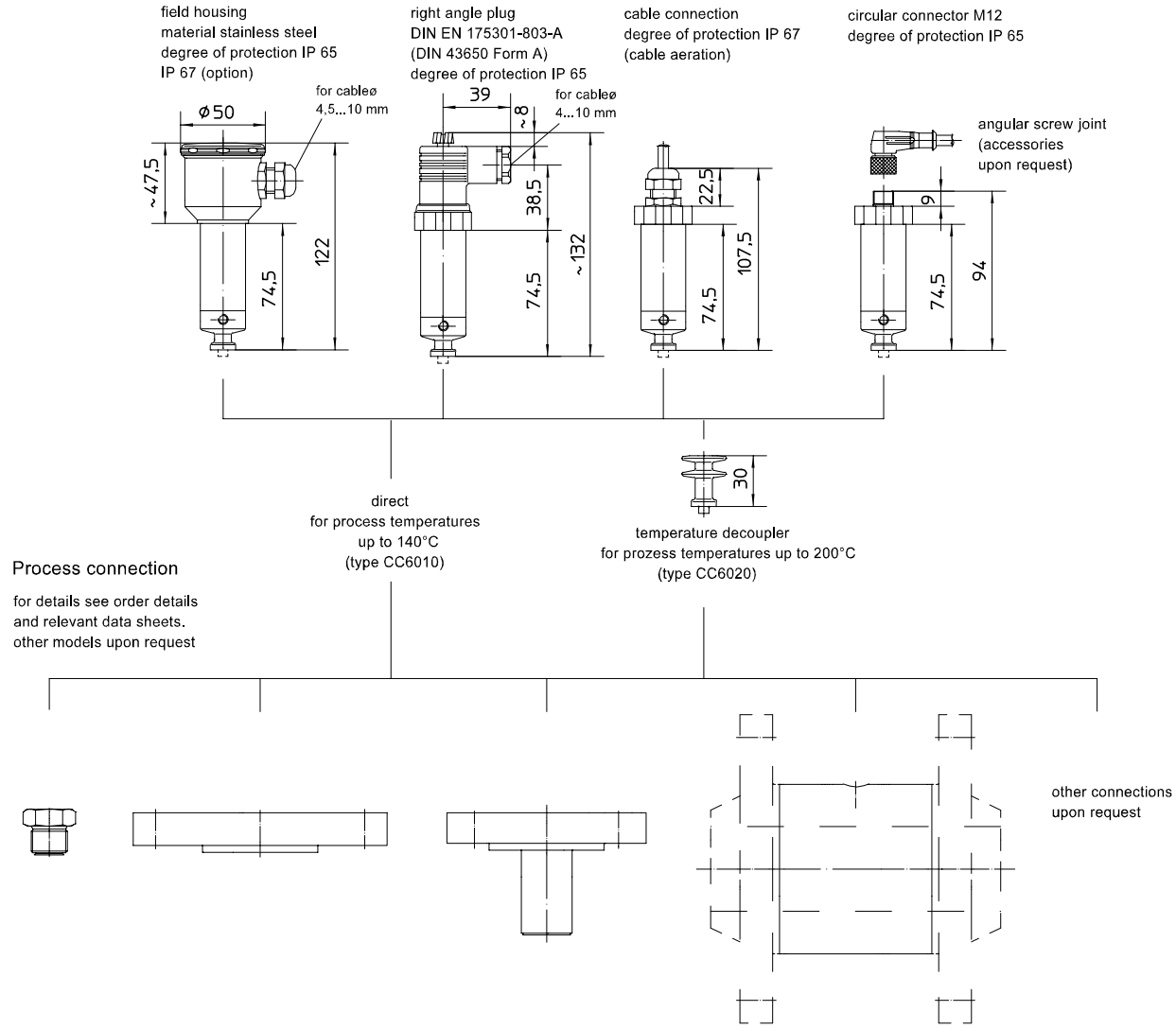
Ex-approval
CENELEC approval according to ATEX
TÜV 00 ATEX 1557 X
marking:
Ex II 2 G Ex ib IIC T6 Gb
· U_{max} ≤ 30 V DC
· I_{max} ≤ 150 mA
· P_{max} ≤ 1 W
· Ci ≤ 49 nF
· Li ≤ 33 µH

Weights (without diaphragm seal)
· field housing: approx. 460 g
· case with connector: approx. 200 g

Installation position
any

EMC test
· noise immunity according to EN 50082 section 2, version March 1995 issue for industry
· emitted interference according to EN 50081section 1, 1993 issue for residential and industrial areas
Device emits no radiation of its own

Dimensions



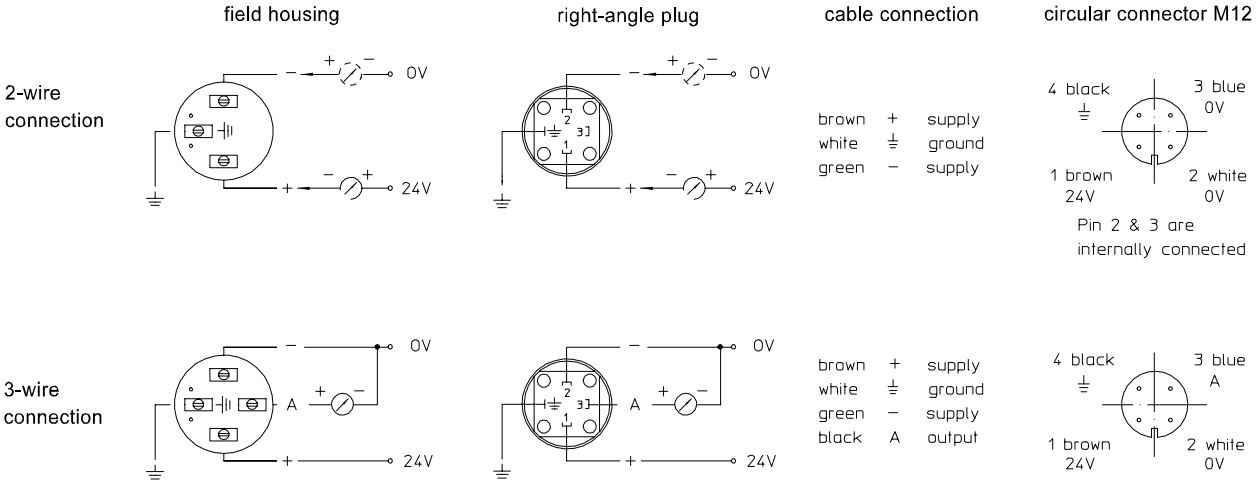
screw-in thread
with flush mounted
diaphragm
G1/2...G2A
data sheet D5-032

flange connection
per DIN or ASME
with flush mounted
diaphragm
DN25...DN125
DN 1" ... DN3"
data sheet D5-030

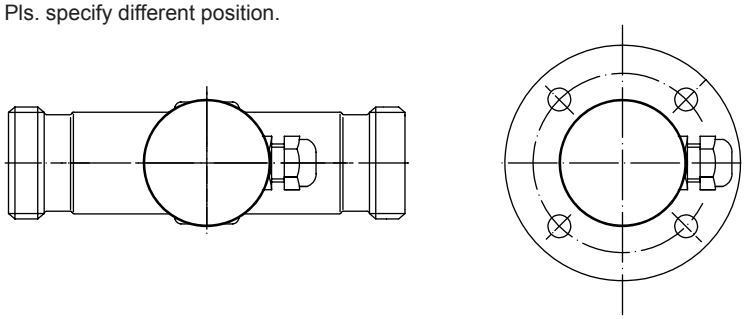
flange connection
per DIN or ASME
with extended diaphragm
DN25...DN125
DN 1" ... DN3"
data sheet D5-031

inline flange connection
per DIN or ASME
DN25...DN150
DN 1" ... DN6"
data sheet D5-039

Connection diagram



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



Order details

Pressure transmitter COMPACT for chemical/petrochemical, type series CC6000-C								
design	· for process temperature to + 140 °C						CC601 .-C	
	· for process temperature to + 200 °C						CC602 .-C	
Ex protection	· without						0	
	· ⟨Ex⟩ II 2 G Ex ib IIC T6 Gb						1	
meas. range	meas. range	overload limit (bar)						
	0...250 mbar[3]	1						A1010
	0...400 mbar	3						A1011
	0...0.6 bar	3						A1052
	0...1 bar	3						A1053
	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	750						A1065
	0...400 bar	750						A1066
	-250...0 mbar[3]	1						A1027
	-400...0 mbar[3]	3						A1028
	-0.6...0 bar [1]	3						A1085
	-1...0 bar [1]	3						A1086
	-1...0.6 bar [1]	10						A1087
	-1...1.5 bar [1]	10						A1088
	-1...3 bar [1]	20						A1089
	-1...5 bar [1]	20						A1090
	-1...9 bar [1]	60						A1091
	-1...15 bar [1]	60						A1092
	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
	measuring range as in writing							A9999
output signal	· 4...20 mA, 2-wire technology, standard							H1
	· 0...20 mA, 3-wire technology							H2
	· 4...20 mA, 3-wire technology							H3
	· 0...10 V, 3-wire technology							H4
case/ electrical connections	· field housing of stainless steel, with cable gland	IP 65, measuring ranges ≤ 16 bar, only [4]						T410
		IP 67						T420
	· right angle plug according to DIN EN 175301-803-A (DIN 43650 Form A), IP 65							T110
	cable connection IP 67	· 2 m cable length						T310
		· 5 m cable length						T311
		· 10 m cable length						T312
		· cable length as in writing						T319
	· circular connector M12, IP 65 [2]							T120

continued next page

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

[2] plug connector with cable see product group D6 (accessories)

[3] low pressure ranges with increased temperature influence (zero point and span): max. = 0.4 %/10K

[4] not valid for absolute pressure

process	screw-in thread		· G 3/4 A · G 1 A · G 1 1/2 A · G 2 A	**DE1280** **DE1380** **DE1580** **DE1680**
			sealing surface DIN EN 1092-1 form B1 (DIN 2526 firn C/D) sealing surface form B2 (form E) in case of special diaphragm material	**DA1 . . .** **DA2 . . .**
		DIN	· DN 25, PN 10/40 · DN 25, PN 64/100 · DN 50, PN 10/40 · DN 50, PN 64 · DN 80, PN 10/40 · further DN/PN upon request	**. . . 120** **. . . 150** **. . . 420** **. . . 430** **. . . 620**
			sealing surface ASME B16.5 RF125 - 250 AA sealing surface ASME B16.5 RFSF, in case of special diaphragm mat.	**DA51 . . .** **DA5 . . .**
		ASME	· DN 1", PN 150 psi · DN 1", PN 300 psi · DN 2", PN 150 psi · DN 2", PN 300 psi · DN 3", PN 150 psi · DN 3", PN 300 psi · further DN/PN upon request	**110** **120** **310** **320** **510** **520**
process connection	flange with diaphragm extension (trunk type design)	sealing surface DIN EN 1092-1, form B1 (DIN 2526 Form C/D)	· DN 25, PN 10-40 · DN 50, PN 25-40 · DN 80, PN 10-40 · DN 100, PN 10-16 · DN 100, PN 25-40 · DN 125, PN 10-16 · DN 125, PN 25-40	**DB1120** **DB1420** **DB1620** **DB1710** **DB1720** **DB1810** **DB1820**
		sealing surface ASME B16.5 RFSF	· DN 1", PN 300 psi · DN 2", PN 300 psi · DN 3", PN 150 psi · DN 3", PN 300 psi · DN 4", PN 150 psi · DN 4", PN 300 psi	**DB5120** **DB5320** **DB5510** **DB5520** **DB5610** **DB5620**
	Inline diaphragm seal (cell design)	DIN EN 1092-1 with plain sealing surface, form B2	· DN 25 · DN 40 · DN 50 · DN 65 · DN 80 · DN 100 · DN 125 · DN 150 · further DN/PN upon request	**DP2180** **DP2380** **DP2480** **DP2580** **DP2680** **DP2780** **DP2880** **DP2980**
		ASME with plain sealing surface ASME B16.5 RF500 RFSF	· DN 1" · DN 1 1/2" · DN 2" · DN 2 1/2" · DN 3" · DN 4" · DN 5" · DN 6" · further DN/PN upon request	**DP6180** **DP6280** **DP6380** **DP6480** **DP6580** **DP6680** **DP6780** **DP6880**
wetted parts [1]			· st. steel mat. no. 1.4404/1.4435 (316L) · st. steel mat. no. 1.4435 (316L) · Tantalum · Hastelloy C276 other materials upon request	**A4001** **A4007** **A4002** **A4003** **A4009**
system filling [3]			<u>liquid filling</u> — <u>operating temperature range</u> · foodstuff oil FD1, standard — +10...+140 °C, standard · foodstuff oil FD1, pls specify temperature, max. — -10...+200 °C other liquids upon request	**L22** **L23**
immersion length L [4]			· 60 mm standard at ≥ DN 80 (3") · 100 mm standard at ≤ DN 65 (2 1/2")	**F1** **F2**
length of trunk [2] material no. 1.4571 (316Ti)			· h = 50 mm · h = 100 mm · h = 150 mm · h = 200 mm · h (mm): special length	**F1** **F2** **F3** **F4** **F9**

additional features (to be indicated in case of need, only)

materials certificate acc. to EN 10204-3.1, wetted parts (stainless steel)	**W1020**
functional safety per EN 61508, classification per SIL 2	**W2602**

example:	pressure transmitter	**CC6011-C**	**A1058**	**H1**	**T410**						
	process connection					**DA1420**	**A4001**	**L22**			

¹ standard st. steel 1.4404 (316L), special materials upon request
² to be specified for flange with trunk-type design, only
³ for ideal system design the exact operating temperature should be specified
⁴ for inline diaphragm seal (cell design) only