

## Pressure transmitter COMPACT ECONomic for diaphragm seal operation Type series CA1110



### Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

### Features

- Digitale pressure transmitter
- Hygienic design according to EHEDG, selected process connections with EHEDG certificate
- Case and wetted parts of stainless steel, degree of protection IP 65
- Measuring ranges
  - 0...1 bar up to 0...40 bar
  - -1...0 bar up to -1...15 bar
- Output signal 4...20 mA, 2-wire technology
- Accuracy  $\leq 0.5\%$
- Easy zero point correction using a magnet
- Media temperature 140 °C

### Options

- Approvals/Certificates
  - Material certificate as per EN 10204-3.1
  - Roughness height rating with inspection certificate acc. to EN 10204-3.1
- As per UKCA regulations
- Output signal (invers) 20...4 mA
- Accuracy  $\leq 0.3\%$
- Hygienic design
- Wetted parts electropolished

### Application

The pressure transmitter COMPACT ECONomic is suitable for measuring the relative and absolute pressure of gases, vapors and liquids.

## Technical data

### Constructional design / case

Design:	Hygienic case with high moisture protection
Material:	Stainless steel mat.-no. 1.4301 (304)
Degree of protection per EN 60529:	Circular connector: IP 65 / IP 67 Right-angle plug: IP 65
Pressure compensation:	Ventilation via electrical connection
Electrical connection	<ul style="list-style-type: none"> <li>■ Circular connector M12x1 (4 pin)</li> <li>■ Right-angle plug per DIN EN 175 301-803-A (DIN 43650 model A)</li> </ul>
Weight:	approx. 0.8 kg

### Process connection

Design:	See order details
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### Material wetted parts

Diaphragm:	See order details
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### Hygienic design

The surface roughness of the wetted parts made of stainless steel are executed according to EHEDG Doc.8 and ASME BPE SF3.

In case of choosing the additional feature HY, we guarantee the following surface roughness values:

Diaphragm foil:	$R_a \leq 0.38 \mu\text{m}$
Laser welds:	$R_a \leq 0.76 \mu\text{m}$
Turned parts:	$R_a \leq 0.76 \mu\text{m}$

Further versions of hygienic design upon request.

### Measuring system

Sensor:	Thin film sensor
System filling:	Synthetic oil FD1, free of silicone, FDA compliant

### Nominal range

Nominal range [bar]	Standard measuring range* [bar]		Measuring spans		Over-load limits [bar]	Vacuum-tight < 50 °C
	min. [bar]	max. [bar]	min. [bar]	max. [bar]		
3	0..1 0...1.6 0...2.5	-1...0 -1...0.6 -1...1.5 -1...3	1	3	6	10 mbar abs
10	0..4 0...6 0...10	-1...5 -1...9	3	12	20	
50	0..16 0...25 0...40	-1...15	12.5	50	100	

\* different measuring ranges upon request

### Accuracy

#### General

Limit point setting:	per DIN 16086
Reference conditions:	per DIN EN 60770-1
Calibration position:	vertical mounting position
Accuracy: (Lin./Hyst./Rep.)	$\leq 0.5 \%$ of adjusted measuring range optional: $\leq 0.3 \%$ of adjusted measuring range
Long term drift:	$\leq 0.1 \%$ / year of nominal range
Temperature influence (transmitter):	$\leq 0.2 \%$ / 10 K of nominal range
Temperature influence (process connection):	Depending on the type of diaphragm seal Upon request we will provide a detailed error analysis.

### Output

Signal:	4...20 mA (20...4 mA), 2-wire technology
Damping:	12 ms
Measuring rate:	80 Hz *
Current range:	3.7...22 mA
Resolution:	6 $\mu\text{A}$
Load, $R_B$ :	$R_B \leq (U_V - 10V) / 0.022 \text{ A } [\Omega]$ $U_V = \text{supply voltage}$

\* Other measuring rates upon request.

### Supply voltage

Functional range:	10...32 V DC
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### Temperature ranges

Temperature ranges for the design of the diaphragm seal system (in combination with the pressure transmission fluid FD1):

Ambient:	-10...50 °C
Media:	-10...140 °C

Adjusted design temperature ranges within the following maximum values are possible on request:

Ambient:	-40...85 °C
Media:	-10...140 °C *

\* At a max. ambient temperature of 55 °C

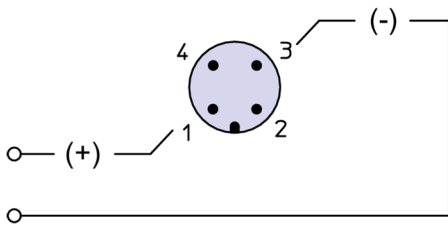
Storage:	-40...85 °C
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### Tests and certificates

EMC :	Per EN 61326-2-3 : 2013-07, EN 61326-1 : 2013
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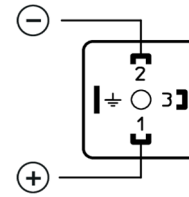
## Connection diagram

circular connector M12



Do not wire terminal 2 + 4

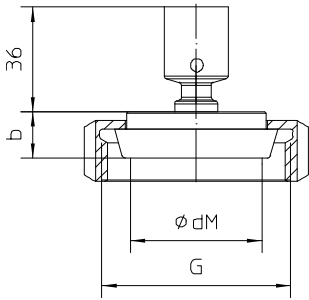
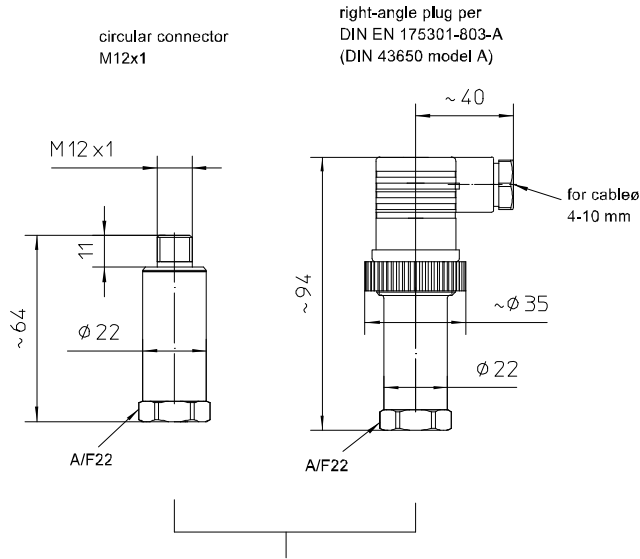
right-angle plug



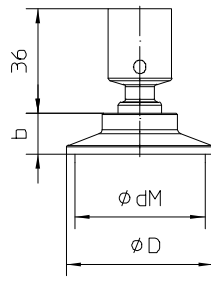
Do not wire terminals 3 +  $\text{⏏}$

The transmitter is grounded via the process connection

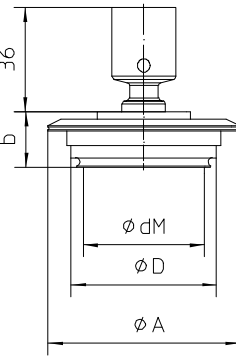
# Dimensions



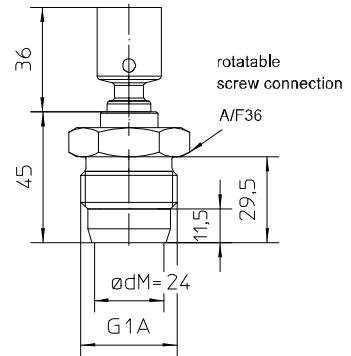
sanitary pipe connection with union nut per DIN 11851



Clamp connection per DIN 32676/ISO 2852



Varivent-connection



screw-in thread HYGIENIC (PN max. 50)

All dimensions are in mm

## Sanitary pipe connection with union nut per DIN 11851

DN	PN	dM	b	G
25	40	27	16	Rd.52x1/6"
32	40	34	16	Rd.58x1/6"
40	40	40	16	Rd.65x1/6"
50	25	51	17	Rd.78x1/6"

## Clamp connection per DIN 32676 model C (Tri-Clamp) for pipes per ASME BPE

DN	PN	dM	b	D
3/4"	25	15.5	15	25
1"	25	22.6	14	50.5
1 1/2"	25	34	12	50.5
2"	16	46	14	64

## Clamp connection per DIN 32676 model A (metric) for pipes per EN 10357 (DIN 11850)

DN	PN	dM	b	D
25	25	22.6	14	50.5
32	25	27	12	50.5
40	25	34	12	50.5
50	16	46	14	64

## Clamp connection per ISO 2852 for pipes per ISO 2037

DN	PN	dM	b	D
25	16	22.6	14	50.5
38	16	34	12	50.5
51	16	46	14	64

## Clamp connection per DIN 32676 model B (OD, ISO) for pipes per DIN EN ISO 1127

DN	PN	dM	b	D
26.9	25	22.6	14	50.5
33.7	25	27	12	50.5
42.4	25	34	12	64
48.3	16	40	14	64

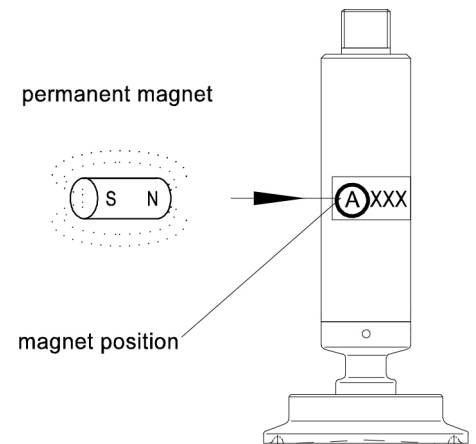
## VARIVENT® connection for VARINLINE® access unit

Connection	PN	dM	A	D
Form F	25	40	66	50
Form N	25	58	84	68

## Zero point correction

The zero point can be set easily with a magnet within  $\pm 10\%$  of the nominal range.

To correct the zero point, hold a permanent magnet – a pin board magnet, for example – at the position marked on the pressure transmitter (i.e. the letter in a circle) within 30 to 120 seconds after the power has been switched on. To correct the zero point, atmospheric pressure has to be applied. Offsets for previously set values for lower range value and ultimate pressures will be corrected automatically by the device. A magnetic field applied out-side of this time period has no effect on the setting. The power must be switched off and on before the zero point can be set again.



## Order details

### Pressure transmitter COMPACT ECO for diaphragm seal operation

#### Type series CA1110

Order details COMPACT ECO CA1110				
CA1110	Pressure transmitter COMPACT ECO for diaphragm seal operation			
A3053	measuring ranges (bar)	0...1		
A3054		0...1.6		
A3055		0...2.5		
A3056		0...4		
A3057		0...6		
A3058		0...10		
A3059		0...16		
A3060		0...25		
A3061		0...40		
A3086		-1...0		
A3087		-1...0.6		
A3088		-1...1.5		
A3089		-1...3		
A3090		-1...5		
A3091		-1...9		
A3092		-1...15		
A9999		different measuring ranges upon request		
H1		output signal	4...20 mA, 2-wire technology (standard)	
H7			20...4 mA, 2-wire technology	
T110	electrical connection	right-angle plug per DIN EN 175 301-803-A (DIN 43650, model A)		
T120		circular connector M12 (4-pin)		
K102	process connection material: ASTM 316L	sanitary pipe connection with union nut per DIN 11851 <sup>1</sup>	DN 25	
K103			DN 32	
K104			DN 40	
K105			DN 50	
K124		clamp connection per ISO 2852 for pipes per ISO 2037 <sup>1</sup>	DN 25 (1")	
K126			DN 38 (1 1/2")	
K127			DN 51 (2")	
K144		clamp connection per DIN 32676, model A (metric) for pipes per EN 10357 (DIN 11850) <sup>1</sup>	DN 25	
K146			DN 32	
K147			DN 40	
K148			DN 50	
K213		clamp connection per DIN 32676, model B (OD, ISO) for pipes per DIN EN ISO 1127 <sup>1</sup>	DN 26.9	
K214			DN 33.7	
K215			DN 42.4	
K216			DN 48.3	
K134		clamp connection per DIN 32676, model C (Tri-Clamp) for pipes per ASME BPE <sup>1</sup>	DN 3/4" <sup>2</sup>	
K136			DN 1"	
K137			DN 1 1/2"	
K138			DN 2"	
K152		VARIVENT® connection <sup>1</sup>	Form F (D=50) for VARINLINE® access unit	
K153			Form N (D=68) for VARINLINE® access unit	
K80		screw-in thread HYGIENIC	G 1 A rotatable, no gasket	
		surface roughness	standard	
HY	(wetted parts)	Hygienic version as per EHEDG Doc.8 and ASME BPE SF3		

Additional features (to be indicated if required)	
Q3	accuracy ≤ 0.3 %
W1020	material certificate per DIN EN 10204-3.1, wetted parts
W1223	roughness measurement
W2660	As per UKCA regulations
W4035	elektropolishing, wetted parts

Order code (example): CA1110 – A3054 – H1 - T120 - ...

<sup>1</sup> EHEDG certified only in connection with hygienic design (order code option HY).

EHEDG certificate valid only if gaskets are used that are listed in the "EHEDG position paper"

<sup>2</sup> for a function calculation and optimim system design it is necessary to specify the operation temperature