

Pressure transmitter UNIVERSAL CA for diaphragm seal operation Type series CA2110



Application area

- Pharmaceutical industry
- Food industry
- Biotechnology

Features

- Universal pressure transmitter, hygienic design per EHEDG, FDA and GMP
- Stainless steel case, degree of protection IP 65
- Direct ventilated sensor element
- Measuring range
 - 0...100 mbar to 0...40 bar rel.
 - 0...1 bar to 0...6 bar abs.
- Accuracy $\leq 0,2\%$
- Output signal 4...20 mA, 2-wire technology
- Easy zero setting by using a magnet
- Various process connections with flush mounted diaphragm, selected connections with EHEDG certificate

Options

- Approvals/Certificates
 - Material certificate as per EN 10204-3.1
 - Calibration certificate as per EN 10204-3.1
 - Roughness height rating with inspection certificate acc. to EN 10204-3.1
- As per UKCA regulations
- Wetted parts electropolished
- Degree of protection IP 67
- Hygienic design

Application

The pressure transmitter UNIVERSAL CA is suited for measuring gauge pressure and absolute pressure of gases, vapors and liquids, especially for hygienic applications.

Technical data

Constructional design / case

| | |
|------------------------------------|---|
| Design: | Hygienic case design |
| | Excellent moisture protection |
| | Fully encapsulated electronics unit |
| Material: | Stainless steel mat.-no. 1.4301 (304) |
| Degree of protection per EN 60529: | <ul style="list-style-type: none">■ IP 65■ Optional IP 67 |
| Pressure compensation: | Aeration via sintered filter |
| El. connection: | <ul style="list-style-type: none">■ Circular connector M12x1■ Right angle plug EN 175301-803-A (DIN 43650 model A) others upon request |
| Climatic category: | 4K4H per EN 60721 3-4 |

Process connection

| | |
|---------|-------------------|
| Design: | See order details |
|---------|-------------------|

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: | $Ra \leq 0.38 \mu\text{m}$ |
| Laser welds: | $Ra \leq 0.76 \mu\text{m}$ |
| Turned parts: | $Ra \leq 0.76 \mu\text{m}$ |

Further versions of hygienic design upon request.

Measuring system

| | |
|-----------------|--|
| Sensor: | Piezoresistive measuring element |
| System filling: | Synthetic oil FD1, free of silicone, FDA compliant |

Measuring ranges / overload limits

| | |
|-----------------------------------|---|
| Measuring range / overload limit: | See order details |
| Vakuum tightness: | Long term vacuum measurements at relative measurement ranges can alter the device characteristics. (piezoresistive measuring system, only) |

Zero settings

| | |
|-------------|-------------------------------------|
| Zero point: | Easy zero setting max. $\pm 20\%$. |
|-------------|-------------------------------------|

Accuracy

| | |
|------------------------------|--|
| Limit point setting: | per DIN 16086 |
| Accuracy (Lin./Hyst./Repr.): | 0.2 % v. of mr (mr ≥ 250 mbar) 0.5 mbar (mr < 250 mbar) |
| Long-term drift: | $\leq 0.1\%$ / year per EN 61298-1 |
| Temperature influence: | <u>Range:</u> 0...50 °C: $\leq 0.25\%$ of mr (mr ≥ 400 mbar) $\leq 0.4\%$ of mr (mr < 400 mbar) $\leq 0.5\%$ of mr (mr < 160 mbar) <u>Range:</u> -20...0 and 50...85 °C: $\leq 0.4\%$ of mr (mr ≥ 400 mbar) $\leq 0.6\%$ of mr (mr < 400 mbar) $\leq 0.8\%$ of mr (mr < 160 mbar) mr = measuring range |

Process connection:

(zero error)

| | |
|--------------|--------------|
| 3/4" | 10 mbar/10K |
| DN 25/1" | 4.8 mbar/10K |
| DN 32/1 1/2" | 2.3 mbar/10K |
| DN 40 | 1.6 mbar/10K |
| DN 50/2" | 0.6 mbar/10K |

Output

| | |
|---------------------|--|
| Signal: | 4...20 mA in 2-wire technology |
| Sampling rate: | 10 measurement/second |
| Current range: | 3.8...20.8 mA |
| Resolution: | 2 μA |
| Current limitation: | ≤ 22 mA |
| Alarm state: | < 3.6 mA |
| Load, R: | $R \leq (U-9V)/0.02 \text{ A } [\Omega]$ U = supply voltage |

Supply voltage

| | |
|-----------------|-------------|
| Function range: | 9...30 V DC |
|-----------------|-------------|

Temperature ranges

| | |
|----------|--|
| Ambient: | -20...85 °C |
| Medium: | -20...125 °C, short term 140 °C, optional up to 160 °C for 1 h. Higher process temperatures upon request |
| Storage: | -40...85 °C |

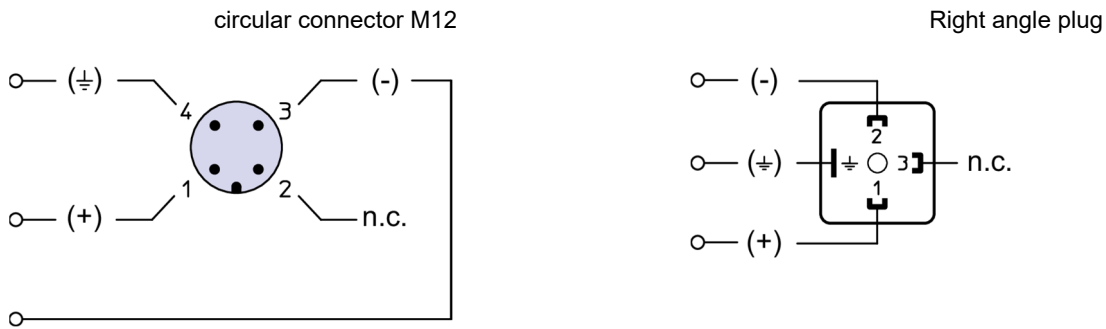
Tests and certificates

| | |
|------|---------------------------|
| EMC: | EMC directives 2014/30/EU |
|------|---------------------------|

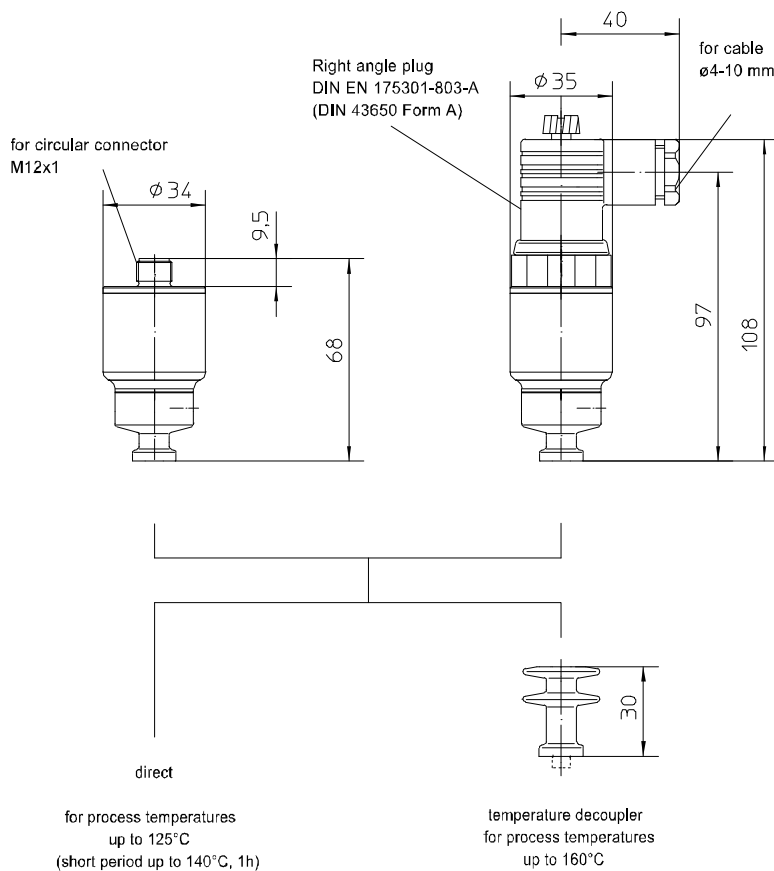
Mounting information

| | |
|-----------------------|-----------|
| Mounting position: | At choice |
| Calibration position: | Vertical |

Connection diagram

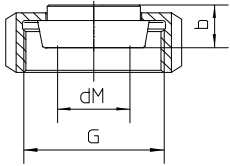


Dimensions

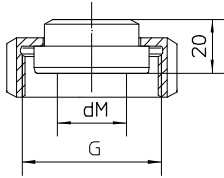


All dimensions are in mm

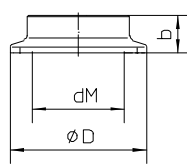
Process connection



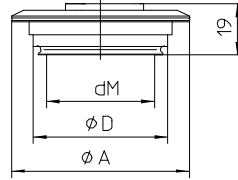
sanitary connection
with coupling nut
per DIN 11851



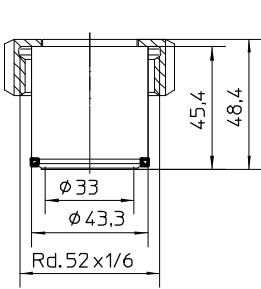
aseptic screw joint
collar connection
with union nut per
DIN 11864-1



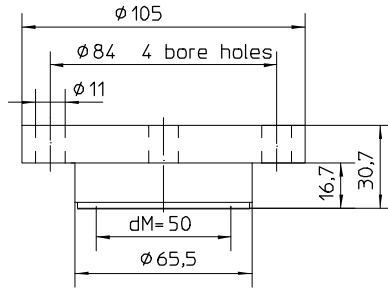
clamp connection
per DIN 32676/ISO 2852



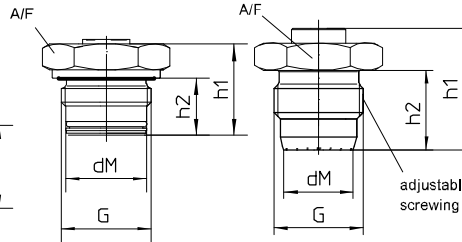
VARIVENT[®] connection for
VARINLINE[®] case



HYGENIC-Tubus *
Ø43.3 with screwing
DN25/PN40



DRD-connection DN50 PN40 *



Screw-in thread *
with o-ring-gasket
and additionally gasket
per DIN EN ISO 1179-2
model E (DIN 3852)

HYGENIC-screw-in thread *
no gasket
tightening torque
20 Nm, max. nominal pressure 10 bar
50 Nm, max. nominal pressure 50 bar

* weld-in adapter
see data-sheet D8-037

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" |

Aseptic screw joint collar connection with union nut per DIN 11864-1

| DN | PN | dM | G |
|----|----|----|------------|
| 25 | 40 | 24 | Rd.52x1/6" |
| 32 | 40 | 30 | Rd.58x1/6" |
| 40 | 40 | 34 | Rd.65x1/6" |
| 50 | 25 | 48 | Rd.78x1/6" |

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 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 |

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 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 |

VARIVENT[®] connection for VARINLINE[®] access unit

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

HYGIENIC screw-in thread, gasket without elastomer

| G | PN (bar) | dM | h1 | h2 | SW |
|------|----------|----|----|------|----|
| G1 A | 50 | 24 | 45 | 28.5 | 36 |

Screw-in thread with O ring gasket

| G | PN (bar) | dM | h1 | h2 | SW |
|--------|----------|------|----|------|----|
| G1/2 A | 200 | 15.5 | 33 | 20.5 | 27 |
| G1 A | 50 | 24 | 33 | 20.5 | 41 |

Order details

| Pressure transmitter Universal CA for diaphragm seal operation | | | |
|--|--|--|----------------------|
| CA2110 | Pressure transmitter UNIVERSAL CA for diaphragm seal operation | | |
| | | measuring range | overload limit (bar) |
| A1008 | measuring ranges | 0...100 mbar | 1 |
| A1009 | | 0...160 mbar | 1 |
| A1010 | | 0...250 mbar | 3 |
| A1011 | | 0...400 mbar | 3 |
| A1012 | | 0...600 mbar | 3 |
| A1053 | | 0...1 bar | 10 |
| A1054 | | 0...1.6 bar | 10 |
| A1055 | | 0...2.5 bar | 10 |
| A1056 | | 0...4 bar | 20 |
| A1057 | | 0...6 bar | 20 |
| A1058 | | 0...10 bar | 100 |
| A1059 | | 0...16 bar | 100 |
| A1060 | | 0...25 bar | 100 |
| A1061 | | 0...40 bar | 100 |
| A1025 | | -100...0 bar | 1 |
| A1026 | | -160...0 bar | 1 |
| A1027 | | -250...0 bar | 3 |
| A1028 | | -400...0 bar | 3 |
| A1552 | | -600...0 bar | 3 |
| A1086 | | -1...0 bar | 10 |
| A1087 | | -1...0.6 bar | 10 |
| A1088 | | -1...1.5 bar | 10 |
| A1089 | | -1...3 bar | 20 |
| A1090 | | -1...5 bar | 20 |
| A1091 | | -1...9 bar | 100 |
| A1092 | | -1...15 bar | 100 |
| A1093 | | -1...24 bar | 100 |
| B1053 | | 0...1 bar abs | 10 |
| B1054 | | 0...1.6 bar abs | 10 |
| B1055 | | 0...2.5 bar abs | 10 |
| B1056 | | 0...4 bar abs | 20 |
| B1057 | | 0...6 bar abs | 20 |
| A9999 | variants as in writing | | |
| H11 | output signal | 4...20 mA, 2-wire technology | |
| T30 | electrical connection | circular connector M12 | |
| T51 | | right angle plug, DIN EN 175301-803-A (DIN 43650 model A) ¹ | |
| T99 | | others upon request | |

| Continuation order code | | | |
|-------------------------|---|---|--|
| K1085 | design | standard | |
| K2085 | | with temperature decoupler | |
| K102 | process connection material: ASTM 316L ² | sanitary pipe connection with union nut per DIN 11851 ^{3,4} | DN 25 |
| K103 | | | DN 32 |
| K104 | | | DN 40 |
| K105 | | | DN 50 |
| K162 | | | DN 25 |
| K163 | | DN 32 | |
| K165 | | DN 40 | |
| K166 | | DN 50 | |
| K124 | | clamp connection per ISO 2852 for pipes per ISO 2037 ^{3,4} | 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) ^{3,4} | DN 25 |
| K146 | | | DN 32 |
| K147 | | | DN 40 |
| K148 | | | DN 50 |
| K213 | | | DN 26,9 |
| K214 | | clamp connection per DIN 32676, model B (OD, ISO) for pipes per DIN EN ISO 1127 ^{3,4} | 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 ^{3,4} | DN 3/4" ⁵ |
| K136 | | | DN 1" |
| K137 | | | DN 1 1/2" |
| K138 | | | DN 2" |
| K152 | | VARIVENT® connection ^{3,4} | Form F (D=50) for VARINLINE® access unit |
| K153 | | | Form N (D=68) for VARINLINE® access unit |
| K172 | | HYGIENIC Tubus | Ø 43,3 mm with screwing DN 25/PN 40 |
| K185 | | DRD connection | nominal width DN 50 / nominal pressure PN 40 |
| K195 | | screw-in thread | G 1 A with O-ring seal ⁶ |
| K80 | G 1 A with hygienic process connection (elastomer-free) | | |
| | surface roughness | standard | |
| HY | (wetted parts) | Hygienic version as per EHEDG Doc.8 and ASME BPE SF3 | |

| Additional features (to be indicated if required) | |
|---|---|
| T1 | degree of protection IP 67 ⁷ |
| W1020 | material certificate per DIN EN 10204-3.1, wetted parts (stainless steel) |
| W2660 | As per UKCA regulations |

Order code (example): CA2110 - A1009 - H11 - K2085 - K214 - HY - ...

¹ not in degree of protection IP 67

² further process connections upon request

³ EHEDG certified only in connection with hygienic design (order code option HY)

⁴ EHEDG certificate valid only if gaskets are used that are listed in the "EHEDG position paper"

⁵ possible for measuring ranges ≥ 250 mbar. For a function calculation and optimim system design it is necessary to specify the operation temperature

⁶ hygienic design not available

⁷ only with circular connector