



## CPA-K-331

- hydrostatic level transmitter
- screw-in probe
- nominal pressure: from 0...400 mbar up to 0...60 bar
- output signals: 2-wire: 4...20 mA; 3-wire: 0...20 mA / 0...10 V
- stainless steel probe
- ceramic sensor
- accuracy 0.5 % span
- pressure port G 3/4" flush for pasty and impure media / PVDF for aggressive media
- certified for contact with drinking water by the Polish National Institute of Public Health (PZH) - EPDM version

The screw-in transmitter **CPA-K-331** has been especially designed for level and process measurement and is suitable for pressure measurement of liquids, oils and gases. Usage in more viscous or polluted media is possible because of the semi-flush pressure sensor. For the usage in aggressive media we recommended the version with PVDF pressure port.

### PREFERRED AREAS OF USE ARE



Plant and Machine Engineering



Environmental Engineering  
(water - sewage - recycling)



Energy Industry



Medical Technology

### TECHNICAL DATA

| Input pressure range   |                     |                                                                                           |     |    |     |     |    |    |     |     |     |                 |                 |
|------------------------|---------------------|-------------------------------------------------------------------------------------------|-----|----|-----|-----|----|----|-----|-----|-----|-----------------|-----------------|
| Nominal pressure gauge | [bar]               | 0.4                                                                                       | 0.6 | 1  | 1.6 | 2.5 | 4  | 6  | 10  | 16  | 25  | 40 <sup>1</sup> | 60 <sup>1</sup> |
| Level                  | [mH <sub>2</sub> O] | 4                                                                                         | 6   | 10 | 16  | 25  | 40 | 60 | 100 | 160 | 250 | 400             | 600             |
| Overpressure           | [bar]               | 1                                                                                         | 2   | 2  | 4   | 4   | 10 | 20 | 20  | 40  | 100 | 100             | 200             |
| Burst pressure         | [bar]               | 2                                                                                         | 4   | 4  | 5   | 5   | 12 | 25 | 25  | 50  | 120 | 120             | 250             |
| Vacuum resistance      | [bar]               | P <sub>N</sub> ≥ 1 bar: unlimited vacuum resistance<br>P <sub>N</sub> < 1 bar: on request |     |    |     |     |    |    |     |     |     |                 |                 |

<sup>1</sup> only possible with stainless steel pressure port

| Output signal / Supply |                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Standard               | 2-wire: 4 ... 20 mA / V <sub>S</sub> = 8 ... 32 V <sub>DC</sub>                                                             |
| Option 3-wire          | 3-wire: 0 ... 20 mA / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub><br>0 ... 10 V / V <sub>S</sub> = 14 ... 30 V <sub>DC</sub> |

| Performance           |                                                                                                                                                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Accuracy <sup>2</sup> | ± 0.5 % span                                                                                                                                                                   |
| Permissible load      | current 2-wire: R <sub>max</sub> = [(V <sub>S</sub> - V <sub>S min</sub> ) / 0.02 A] W<br>current 3-wire: R <sub>max</sub> = 500 W<br>voltage 3-wire: R <sub>min</sub> = 10 kW |
| Influence effects     | supply: 0.05 % span / 10 V<br>load: 0.05 % span / kW                                                                                                                           |
| Response time         | 2-wire: ≤ 10 msec<br>3-wire: ≤ 3 msec                                                                                                                                          |

<sup>2</sup> accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability)

| Thermal effects (Offset and Span) / Permissible Temperatures |                                                                                               |
|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Thermal error                                                | ≤ ± 0.2 % span / 10 K                                                                         |
| in compensated range                                         | -25 ... 85 °C                                                                                 |
| Permissible temperatures <sup>3</sup>                        | medium: -40 ... 125 °C<br>storage: -40 ... 100 °C<br>electronics / environment: -40 ... 85 °C |

<sup>3</sup> for pressure port of PVDF the permissible temperature is -30 ... 60 °C

| Electrical protection         |                                             |
|-------------------------------|---------------------------------------------|
| Short-circuit protection      | permanent                                   |
| Reverse polarity protection   | no damage, but also no function             |
| Electromagnetic compatibility | emission and immunity according to EN 61326 |

| Mechanical stability    |                                                                                                  |                                       |                                       |
|-------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------|
| Vibration               | 10 g RMS (25 ... 2000 Hz)                                                                        | according to DIN EN 60068-2-6         |                                       |
| Shock                   | 500 g / 1 msec                                                                                   | according to DIN EN 60068-2-27        |                                       |
| Materials               |                                                                                                  |                                       |                                       |
| Pressure port / housing |                                                                                                  | pressure port                         | housing                               |
|                         | standard:<br>options for $P_N \leq 25$ bar:                                                      | stainless steel 1.4404 (316L)<br>PVDF | stainless steel 1.4404 (316L)<br>PVDF |
| Option field housing    | stainless steel 1.4301 (304); cable gland M16x1.5, brass nickel plated (clamping range 2...8 mm) |                                       |                                       |
| Seals                   | standard: FKM<br>options: EPDM (with drinking water certificate) / NBR                           | others on request                     |                                       |
| Diaphragm               | ceramics $Al_2O_3$ 96 %                                                                          |                                       |                                       |
| Media wetted parts      | pressure port, seals, diaphragm                                                                  |                                       |                                       |
| Miscellaneous           |                                                                                                  |                                       |                                       |
| Current consumption     | signal output current: max. 25 mA                                                                | signal output voltage:                | max. 5 mA                             |
| Weight                  | approx. 150 g                                                                                    |                                       |                                       |
| Installation position   | any                                                                                              |                                       |                                       |
| Operational life        | > 100 x 10 <sup>6</sup> pressure cycles                                                          |                                       |                                       |
| CE-conformity           | EMC Directive: 2014/30/EU                                                                        |                                       |                                       |

## ELECTRICAL CONNECTION

## Wiring diagrams

### 2-wire-system (current)

### 3-wire-system (current / voltage)

## Pin configuration

| Electrical connections     | ISO 4400       | Binder 723 (5-pin) | M12x1 / metal (4-pin) | field housing | cable colours (DIN 47100) |
|----------------------------|----------------|--------------------|-----------------------|---------------|---------------------------|
| Supply +                   | 1              | 3                  | 1                     | IN +          | wh (white)                |
| Supply -                   | 2              | 4                  | 2                     | IN-           | bn (brown)                |
| Signal + (only for 3-wire) | 3              | 1                  | 3                     | OUT+          | gn (green)                |
| Shield                     | ground contact | 5                  | 4                     |               | gn/ye (green / yellow)    |

## Electrical connections (dimensions in mm)

### standard

### options:

ISO 4400  
(IP 65)

Binder Series 723 5-pin  
(IP 67)

M12x1 4-pin  
(IP 67)

cable gland PG7/  
cable length specify  
(IP 67)<sup>4</sup>

field housing  
(IP 67)

cable outlet, cable with  
ventilation tube (IP 68)<sup>5</sup>

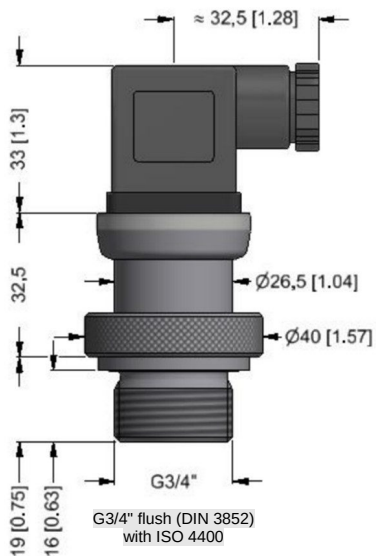
**d** universal stainless steel housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

<sup>4</sup> standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70°C)

<sup>5</sup> different cable types and length available, permissible temperature depends on kind of cable



## REFERENCES



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CPA-K-331- - - - -

CPA-K-331-    -     -  -  -    -  -  -

| Mechanical connection                                                                                       |  |  |  |  |  |   |   |   |   |
|-------------------------------------------------------------------------------------------------------------|--|--|--|--|--|---|---|---|---|
| G 3/4" (DIN 3852) - flush                                                                                   |  |  |  |  |  | K | 0 | 0 |   |
| Customer                                                                                                    |  |  |  |  |  | 9 | 9 | 9 |   |
| Seals                                                                                                       |  |  |  |  |  |   |   |   |   |
| Viton (FKM)                                                                                                 |  |  |  |  |  |   | 1 |   |   |
| EPDM <sup>5</sup>                                                                                           |  |  |  |  |  |   | 3 |   |   |
| NBR                                                                                                         |  |  |  |  |  |   | 5 |   |   |
| Customer                                                                                                    |  |  |  |  |  |   | 9 |   |   |
| Housing                                                                                                     |  |  |  |  |  |   |   |   |   |
| Stainless steel 1.4404 (316 L)                                                                              |  |  |  |  |  |   | 1 |   |   |
| PVDF (P <sub>N</sub> ≤ 25 bar) <sup>3</sup>                                                                 |  |  |  |  |  |   | B |   |   |
| Customer                                                                                                    |  |  |  |  |  |   | 9 |   |   |
| Diaphragm                                                                                                   |  |  |  |  |  |   |   |   |   |
| Ceramic Al <sub>2</sub> O <sub>3</sub> 96 %                                                                 |  |  |  |  |  |   | 2 |   |   |
| Ceramic Al <sub>2</sub> O <sub>3</sub> 96 % with PTFE foil (accuracy ≥ 1%) - not possible for underpressure |  |  |  |  |  |   | 3 |   |   |
| Customer                                                                                                    |  |  |  |  |  |   | 9 |   |   |
| Special version                                                                                             |  |  |  |  |  |   |   |   |   |
| Standard                                                                                                    |  |  |  |  |  |   |   | 0 | 0 |
| Customer                                                                                                    |  |  |  |  |  |   |   | 9 | 9 |

- 1 - only possible for pressure port of stainless steel
- 2 - code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price
- 3 - permissible medium temperature: -30 ... 60 °C
- 4 - maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m
- 5 - drinking water certification only possible with EPDM seal

The manufacturer reserves the right to change sensor specifications without prior notice.

