

CPA-K-351



- hydrostatic level transmitter
- screw-in probe
- nominal pressure: from 0...40 mbar up to 0...20 bar
- output signals: 2-wire: 4...20 mA; 3-wire: 0...20 mA / 0...10 V
- stainless steel probe
- ceramic sensor
- accuracy 0.35 % / 0.25 % span
- pressure port PVDF-version for aggressive media, pressure port G1 1/2" for pasty and polluted media
- optional: diaphragm 99.9 % Al₂O₃



The screw-in transmitter **CPA-K-351** has been designed for measuring small system pressure and level measurement in container. It is based on an own-developed capacitive ceramic sensor element. Usage in viscous and pasty media is possible because of the flush mounted sensor. For the usage in aggressive media a pressure port in PVDF and the diaphragm in Al₂O₃ 99.9 % is available.

PREFERRED AREAS OF USE ARE



Plant and Machine Engineering



Environmental Engineering
(water - sewage - recycling)

TECHNICAL DATA

| Pressure ranges | | | | | | | | | | | | | | | | |
|------------------|---------------------|------|------|------|------|------|-----|-----|----|-----|-----|----|----|-----|-----|-----|
| Nominal pressure | [bar] | 0.04 | 0.06 | 0.1 | 0.16 | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 20 |
| Level | [mH ₂ O] | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 200 |
| Overpressure | [bar] | 2 | 2 | 4 | 4 | 6 | 6 | 8 | 8 | 15 | 25 | 25 | 35 | 35 | 45 | 45 |
| Low pressure | [bar] | -0.2 | | -0.3 | | -0.5 | | | -1 | | | | | | | |

| Output signal / Supply | |
|--|--|
| Standard | 2-wire: 4 ... 20 mA / V _S = 9 ... 32 V _{DC} |
| Option 3-wire | 3-wire: 0 ... 10 V / V _S = 12.5 ... 32 V _{DC} |
| Performance | |
| Accuracy ¹ | standard: ≤ ± 0.35 % span option: ≤ ± 0.25 % span |
| Permissible load | current 2-wire: R _{max} = [(V _S - V _{S min}) / 0.02 A] Ω voltage 3-wire: R _{min} = 10 kΩ |
| Influence effects | supply: 0.05 % span / 10 V load: 0.05 % span / kΩ |
| Long term stability | ≤ ± 0.1 % span / year |
| Turn-on time | 700 msec |
| Mean measuring time | 5/sec |
| Response time | mean response time: ≤ 200 msec max. response time: 380 msec |
| ¹ accuracy according to EN IEC 62828-2- limit point adjustment (non-linearity, hysteresis, repeatability) | |
| Thermal effects (Offset and Span) / Permissible temperatures | |
| Tolerance band | ≤ ± 0.1 % span / 10 K in compensated range - 20 ... 80 °C |
| Permissible temperatures ² | medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C |
| ² 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 (20 ... 2000 Hz) according to DIN EN 60068-2-6 |
| Shock | 100 g / 1 msec according to DIN EN 60068-2-27 |



Level transmitters

| Materials (media wetted) | |
|---------------------------|---|
| Pressure port | standard: stainless steel 1.4404 (316L), PVC option: PVDF |
| Housing | standard: stainless steel 1.4404 (316L) option: PVDF |
| Option field housing | Stainless steel 1.4301 (304) |
| Seals | FKM -40 ... 125 °C FFKM -15 ... 125 °C EPDM -40 ... 125 °C |
| Diaphragm | standard: ceramics Al ₂ O ₃ 96 % options: ceramics Al ₂ O ₃ 99.9 % |
| Media wetted parts | pressure port, seals, diaphragm |
| Miscellaneous | |
| Current consumption | signal output current: max. 21 mA signal output voltage: max. 5 mA |
| Weight | approx. 200 g |
| Installation position | any |
| Operational life | > 100 x 10 ⁶ loading cycles |
| CE-conformity | EMV-directive: 2014/30/EU |
| Option oxygen application | for P _N ≤ 15 bar: O-ring in 70 EPDM 281 (with BAM-approval); permissible maximum values are 15 bar / 60° C and 10 bar / 90° C for P _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C |

ELECTRICAL CONNECTION

Wiring diagram

2-wire-system (current)

3-wire-system (current/voltage)

Pin configuration

| Electrical connection | ISO 4400 | Binder 723 (5-pin) | M12x1 (4-pin) | field housing | cable colours (IEC 60757) |
|----------------------------|------------|--------------------|---------------|---------------|---------------------------|
| 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 pin | 5 | 4 | | gn/ye (green/yellow) |

Electrical connections (dimensions in mm)

standard

ISO 4400 (IP 65)

option

Binder Series 723 5-pin (IP 67)

M12x1

M12x1 4-pin (IP 67)

gland PG7/cable length specify

gland PG7/cable length specify (IP 67)⁴

cable outlet, cable with ventilation tube

cable outlet, cable with ventilation tube (IP 68)⁵

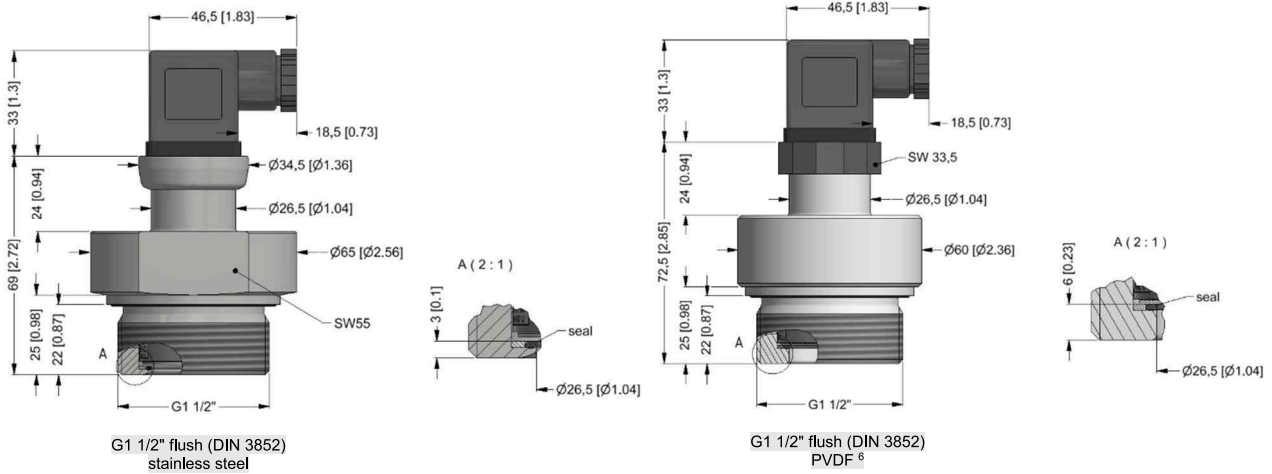
field housing

field housing (IP67)

⁴ standard: 2m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
⁵ different cable types and lengths available, permissible temperature depends on kind of cable



DIMENSION DRAWINGS



| | |
|-----------------|-----------|
| material | A |
| stainless steel | approx. 3 |
| PVDF | approx. 6 |

⁶ not possible in combination with field housing

ORDER CODE

CPA-K-351- [] - [] - [] - [] - [] - [] - [] - [] - [] - [] - []

| | | | | | | | | | | | | | | | | | | | | |
|--|---------------------|------------|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|--|--|
| Pressure | | | | | | | | | | | | | | | | | | | | |
| in bar | | 4 | 7 | 0 | | | | | | | | | | | | | | | | |
| in m H ₂ O | | 4 | 7 | 1 | | | | | | | | | | | | | | | | |
| Input | [mH ₂ O] | [bar] | | | | | | | | | | | | | | | | | | |
| | 0 ... 0.4 | 0 ... 0,04 | | 0 | 4 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 0.6 | 0 ... 0,06 | | 0 | 6 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 1 | 0 ... 0,1 | | 1 | 0 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 1.6 | 0 ... 0,16 | | 1 | 6 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 2.5 | 0 ... 0,25 | | 2 | 5 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 4 | 0 ... 0,4 | | 4 | 0 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 6 | 0 ... 0,6 | | 6 | 0 | 0 | 0 | | | | | | | | | | | | | |
| | 0 ... 10 | 0 ... 1 | | 1 | 0 | 0 | 1 | | | | | | | | | | | | | |
| | 0 ... 16 | 0 ... 1,6 | | 1 | 6 | 0 | 1 | | | | | | | | | | | | | |
| | 0 ... 25 | 0 ... 2,5 | | 2 | 5 | 0 | 1 | | | | | | | | | | | | | |
| | 0 ... 40 | 0 ... 4 | | 4 | 0 | 0 | 1 | | | | | | | | | | | | | |
| | 0 ... 60 | 0 ... 6 | | 6 | 0 | 0 | 1 | | | | | | | | | | | | | |
| | 0 ... 100 | 0 ... 10 | | 1 | 0 | 0 | 2 | | | | | | | | | | | | | |
| | 0 ... 160 | 0 ... 16 | | 1 | 6 | 0 | 2 | | | | | | | | | | | | | |
| | 0 ... 200 | 0 ... 20 | | 2 | 0 | 0 | 2 | | | | | | | | | | | | | |
| Customer | | | | 9 | 9 | 9 | 9 | | | | | | | | | | | | | |
| Output signal | | | | | | | | | | | | | | | | | | | | |
| 4 ... 20 mA / 2-wire | | | | | | | | 1 | | | | | | | | | | | | |
| 0 ... 10 V / 3-wire ³ | | | | | | | | 3 | | | | | | | | | | | | |
| Customer | | | | | | | | 9 | | | | | | | | | | | | |
| Accuracy | | | | | | | | | | | | | | | | | | | | |
| 0,5 % (plastic housing material) | | | | | | | | | 5 | | | | | | | | | | | |
| 0,35 % (standard) | | | | | | | | | 3 | | | | | | | | | | | |
| 0,25 % | | | | | | | | | 2 | | | | | | | | | | | |
| 0,5 % including Calibration Certificate | | | | | | | | | T | | | | | | | | | | | |
| 0,35 % including Calibration Certificate | | | | | | | | | S | | | | | | | | | | | |
| Table of measured values for accuracy 0,35 % | | | | | | | | | M | | | | | | | | | | | |
| Customer | | | | | | | | | 9 | | | | | | | | | | | |



Level transmitters

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| | | | | | | | | | |
|--|---|---|---|---|---|---|---|---|-------|
| Electrical connection | | | | | | | | | |
| Connector DIN 43650 (ISO 4400) (IP 65) | 1 | 0 | 0 | | | | | | |
| Connector Binder Serie 723 5-pin (IP 67) | 2 | 0 | 0 | | | | | | |
| Cable gland PG7 / cable length specify (IP 67) | 4 | 0 | 0 | | | | | | |
| + PVC cable / 1 m | | | | | | | | | |
| Connector Buccaneer (IP 68) | 5 | 0 | 0 | | | | | | |
| Field housing stainless steel, cable gland M 20 x 1,5 (IP 67) | 8 | 8 | 0 | | | | | | |
| Connector DIN 43650 (ISO 4400) - potting compound inside (IP 67) | E | 0 | 0 | | | | | | |
| Connector M12 x 1, 4-pin (IP 67) | M | 0 | 0 | | | | | | |
| Connector M12 x 1, 4-pin (IP 67) - metal | M | 1 | 0 | | | | | | |
| Cable outlet, cable with ventilation tube (IP68) ¹ | T | R | 0 | | | | | | |
| + PVC cable / 1 m | | | | | | | | | |
| Customer | 9 | 9 | 9 | | | | | | |
| Mechanical connection | | | | | | | | | |
| G 1 1/2" (DIN 3852) - flush | | | | M | 0 | 0 | | | |
| Customer | | | | 9 | 9 | 9 | | | |
| Seals | | | | | | | | | |
| Viton (FKM) | | | | | | | 1 | | |
| EPDM | | | | | | | 3 | | |
| FFKM | | | | | | | 7 | | |
| Customer | | | | | | | 9 | | |
| Housing | | | | | | | | | |
| Stainless steel 1.4404 (316 L) | | | | | | | | 1 | |
| PVC | | | | | | | | A | |
| PVDF ² | | | | | | | | B | |
| Customer | | | | | | | | 9 | |
| Diaphragm | | | | | | | | | |
| Ceramic Al ₂ O ₃ 96 % | | | | | | | | | 2 |
| Ceramic Al ₂ O ₃ 96 % with PTFE foil (accuracy ≥ 1%) | | | | | | | | | 3 |
| Ceramic Al ₂ O ₃ 99,9 % | | | | | | | | | C |
| Customer | | | | | | | | | 9 |
| Special version | | | | | | | | | |
| Standard | | | | | | | | | 0 0 0 |
| Version for oxygen | | | | | | | | | 0 0 7 |
| Customer | | | | | | | | | 9 9 9 |

1 - code TR0 = PVC cable, cable with ventilation tube available in different types and lengths; cable not included in the price

2 not possible in combination with compact field housing; permissible medium temperature: -30 ... 60 °C

3 - maximum length of PVC cable – 25 m, PUR, FEP, TPE – 40 m

Manufacturer reserves the right to change sensor specifications without further notice.

