PRODUCT CATALOGUE PRESSURE TRANSMITTER





PRESSURE AT THE HIGHEST LEVEL

"Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else"

This is our philosophy. That's why BDSENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.



With 260 employees at 4 locations in Germany, the Czech Republic, Russia and China BDJSENSORS has solutions from 0.1 mbar to 6000 bar:

- → pressure sensors, pressure transducers pressure transmitters
- \rightarrow electronic pressure switches
- → pressure measuring devices with display and switching outputs
- \rightarrow hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART[®] communication or field bus interface.

In addition we have developed hundreds of customerspecific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

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For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection - we solve your problem

flexibly, quickly and cost-efficiently.

| MATR | IX | |
|------|----|--|
|------|----|--|

| | | | 1 | | | | | | | sure p s con I | | | 1 | | |
|------------------|------------------------|----------------|-----|-----------------------------|-----------------------------------|---|---------------------|-------------------|------------|--------------------------|------------------------------|--------|------------|------------------|---------|
| | stainless steel sensor | ceramic sensor | DMS | accuracy (FSO) ¹ | nominal, pressure [bar] | options / special characteristics | inch and NPT thraed | inch thread flush | dairy pipe | Clamp (3A-certification) | Varivent® (3A-certification) | flange | DRD flange | certificates | page |
| precision | | | | | | | | | 1 | 1 | 1 | 1 | | | |
| XMP i | • | | | 0.1 % | 0 0.4 up to 0 600 | flameproof enclosure, | • | • | | | | • | • | Ex, HART® | 5-9 |
| | - | | | | | cooling element up to 300°C | | | | | | | | | |
| XMP ci | | • | | 0.1 % | 0 0.06 up to 0 20 | flameproof enclosure hygienic version, | • | • | | | | • | • | Ex, HART® | 10-14 |
| x act i | • | | | 0.1 % | 0 0.4 up to 0 40 | cooling element up to 300°C | | | • | • | • | • | • | Ex, HART®, 3A | 15-19 |
| x act ci | | • | | 0.1 % | 0 0.06 up to 0 20 | hygienic version | | • | • | • | • | • | • | Ex, HART® | 20-24 |
| DMP 331Pi | • | | | 0.1 % | 0 0.4 up to 0 40 | communication interface for adjustment of offset, span end damping | | • | • | • | | | | Ex | 25-29 |
| DMP 331i | • | | | 0.1 % | 0 0.4 up to 0 40 | communication interface for adjustment of offset, span end damping | • | | | | | | | Ex | |
| DMP 333i | • | | | 0.1 % | 0 60 up to 0 600 | communication interface for adjustment of offset, span end damping | • | | | | | | | Ex | 30-34 |
| industry | | | | | | | | | | | | | | | |
| DMP 343 | • | | | 0.35 % | 0 0.01 up to 0 1 | for non-aggressive gases | • | | | | | | | Ex, SIL, UL | 35-39 |
| DMP 331 | • | | | 0.35 % | 0 0.01 up to 0 1 | universal applications | • | • | | | | | | Ex, SIL, UL | 40-4 |
| DMP 333 | • | | | 0.35 % | 0 60 up to 0 600 | universal applications | • | | | | | | | Ex, SIL, UL | 45-4 |
| DMP 339 | • | | | 0.35 % | 0 60 up to 0 600 | G 1/2" flush | | • | | | | | | Ex | 50-5 |
| DMP 335 | • | | | 0.5 % | 0 6 up to 0 600 | welded version | • | | | | | | | Ex, UL | 54-58 |
| DMP 334 | • | | | 0.35 % | 0 600 up to 0 2.200 | adjustability of span and offset | • | | | | | | | Ex, UL | 59-62 |
| DMP 304 | | | • | 0.5 % | 0 2,000 up to 0 6,000 | adjustability of span and offset | • | | | | | | | Ex | 63-66 |
| DMK 351 | | • | | 0.35 % | 0 0.04 up to 0 20 | diaphragm 99.9% Al2O3, pressure port PVDF | • | | | | | | | Ex | 67-70 |
| DMK 331 | | • | | 0.5 % | 0 0.4 up to 0 600 | pressure port PVDF for agressive media | • | | | | | | | Ex, SIL, UL | 71-7 |
| DMP 457 | • | | | 0.35 % | 0 0.1 up to 0 600 | | • | • | | | | | | EX, DNV, GL, CCS | 76-80 |
| DMK 458 | | • | | 0.25 % | 0 0.04 up to 0 20 | diaphragm 99.9% Al2O3, seawater resistant pressure port | • | | | | | | | EX, DNV, GL, CCS | 81-85 |
| DMK 457 | | • | | 0.5 % | 0 0.4 up to 0 600 | seawater resistant pressure port | • | | | | | | | EX, DNV, GL, CCS | 86-8 |
| DMP 331 P | • | | | 0.35 % | 0 0.1 up to 0 40 | hygienic version, cooling element up to 300°C | | • | • | • | | | | Ex, SIL, UL, 3A | 90-94 |
| DMK 331 P | | • | | 0.5 % | 0 60 up to 0 400 | filling fluid with FDA approval, cooling element up to 300°C | | • | | | | | | Ex, SIL, UL | 95-99 |
| DMK 351 P | | • | | 0.35 % | 0 0.04 up to 0 20 | diaphragm 99.9% Al2O3 | | • | • | • | • | • | | Ex | 100-104 |
| OEM | | | | | | | | | | | | | | | |
| 18.600 G | • | | | 0.5 % | 0 0.1 up to 0 6 | for non-aggressive gases | • | | | | | | | UL | 105-107 |
| 18.601 G | • | | | 0.5 % | 0 0.1 up to 0 6 | | • | | | | | | | UL | 108-110 |
| 26.600 G | | • | | 0.5 % | 0 1 up to 0 400 | oil and grease free version | • | | | | | | | UL | 111-113 |
| 30.600 G | | • | | 1 % | 0 1.6 up to 0 250 | | • | | | | | | | UL | 114-116 |
| 17.609 G | • | | | 0.5 % | 0 6 up to 0 60 | welded version | • | | | | | | | UL | 117-119 |
| 17.600 G | • | | | 0.5 % | 0 6 up to 0 600 | welded version, suitable for oxygen | • | | | | | | | UL | 120-122 |
| special versions | | | | | | | | | | | | | | | |
| DMK 456 | | • | | 0.25 % | 0 0.04 up to 0 20 | diaphragm 99.9% Al2O3, seawater resistant pressure port | • | | | | | • | | EX, DNV, GL, CCS | 123-126 |
| HU 300 | | | • | 0.5% | 0 5,000 psi up to 0 15,000 psi | Hammer Union, pressure port WECO [®] 2" | | | | | | | | Ex | 127-131 |

¹ according to IEC 60770

4

PRECISION PRESSURE TRANSMITTER



XMP i

Precision Pressure Transmitter for the Process Industry with HART[®]-Communication

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:10
- two chamber aluminium die cast case or stainless field housing
- internal or flush welded diaphragm
- ► HART[®]-communication
- IS-version: Ex ia = intrinsically safe for gases and dusts

Optional versions

- ► IS-version:Ex d = flameproof enclosure
- integrated display and operating module
- special materials as Hastelloy[®] and Tantalum
- cooling element for media temperatures up to 300 °C

The process pressure transmitter XMP i has been especially designed for the process industry and measures vacuum, gauge and absolute pressure ranges of gases, steam, fluids up to 600 bar.

Different process connections such as threads and flanges with an internal or flush welded diaphragm are available and can be combined with a cooling element for media temperatures up to 300°C.The transmitter is as a standard equipped with HART[®]-communication; the customer can choose between a two chamber aluminum die cast case or a stainless field housing.

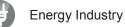
Preferred areas of use are



Oil and gas industry



Chemical and petrochemical industry



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Heavy Industry

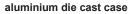


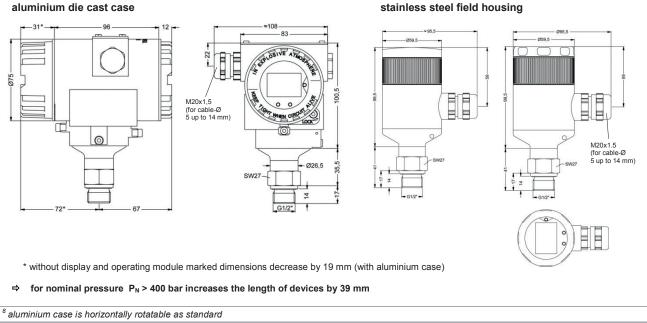
| Pressure ranges ¹ | | | 1 | | | | | | 1 | | | | | | | | |
|---|--|--|--|--|--|--|---|---|---|---|-------------------------|----------------|--|--|--|--|--|
| Nominal pressure | | 0.4 | 1 | 2 | 4 | 10 | 20 | 40 | 100 | 200 | 400 | 600 | | | | | |
| gauge / abs. ² | [bar] | | | | | | - | | | | | | | | | | |
| Overpressure | [bar] | 2 | 5 | 10 | 20 | 40 | 80 | 105 | 210 | 600 | 1000 | 1000 | | | | | |
| Burst pressure ≥ | [bar] | 3 | 7,5 | 15 | 25 | 50 | 120 | 210 | 420 | 1000 | 1250 | 1250 | | | | | |
| ¹ On customer request we adj ² absolute pressure possible fi | | | i the turn-d | own-possi | Dility by S | onware to th | ie required | i pressure r | anges. | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Vacuum ranges | | | | | | | | | | | | 10 | | | | | |
| Nominal pressure gauge | [bar] | | 0.4 | - | ·1 1 | | -1 2 | | -1 4 | 4 | -1 | | | | | | |
| Overpressure Burst pressure ≥ | [bar] [bar] | | 2 3 | | 5 7,5 | | 10 15 | | 20 25 | | 40 50 | | | | | | |
| | [Dai] | | 3 | | 7,5 | | 10 | | 25 | | 50 | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | | | |
| Standard | | 2-wire: 4 | | | | | | | | | | | | | | | |
| Option | | | | | | RT [®] -comm S = 13 … | | / V _s = 12 | 28 V _{DC} | > | | | | | | | |
| Current consumption | | max. 25 i | | | | | | | | | | | | | | | |
| Performance | | | | | | | | | | | | | | | | | |
| Accuracy ³ | | ≤±0.1 % | FSO | | T | ne accurac | v is calcu | lated as f | ollows | | | | | | | | |
| Perfomance after turn-dov | ND | - turn-dov | | no chang | | 0.1 + 0.01 | | | | | | | | | | | |
| | VII | - turn-dov | | | | g. turn-dov | | | | % FSO = | 0.16 % F | SO | | | | | |
| Permissible load | | $R_{max} = [()$ | |) / 0.02 A | | | | ing HART | | | | | | | | | |
| Influence effects | | supply: 0 | | | - | | | ible load: | | | | | | | | | |
| Long term stability | | ≤ ± 0.1 % | | | erence c | onditions | <u> </u> | | | | | | | | | | |
| Response time | | | | | | electronic | damping | 9 | measurir | ng rate 10 | /sec | | | | | | |
| Adjustability | | electronic | | | | |) 90 % | FSO; | turr | n-down of | span up t | to 1:10 | | | | | |
| ³ accuracy according to IEC 6 | 60770 — lir | nit point adj | ustment (no | on-linearity | , hystere | sis, repeata | bility) | | | | | | | | | | |
| Thermal errors / Permiss | sible ten | nperature | s | | | | | | | | | | | | | | |
| Tolerance band 4, 5 | | ≤ 0.2 % F | SO x turr | n-down (ii | n compe | nsated rar | nge -20 | . 85 °C) | | | | | | | | | |
| Permissible temperatures | 6 | medium | | | | | | without di | splay: | environm | ent: -40 | 80 °C | | | | | |
| | | | 25 °C for | filling flui | d silicon | oil | _ | storage: -40 80 °C | | | | | | | | | |
| | | 10 1 | | | | | | | | | | | | | | | |
| | | -10 1 | 25 °C for | filling flui | | ompatible | oil | with displa | | | | | | | | | |
| Permissible temperature | | | | | d food co | ompatible | | · · · | | storage: | -30 | 80 °C | | | | | |
| Permissible temperature medium for cooling eleme | ent | filling fluid | d silicon o | il | d food co | ompatible overpress | ure: -40 . | 300 °C | low | storage: pressure: | -30 -40 15 | 80 °C 50 °C | | | | | |
| medium for cooling eleme 300°C | | filling fluid filling fluid | d silicon o d food cor | il npatible d | d food co pil | ompatible overpress overpress | ure: -40 . ure: -10 . | 300 °C 250 °C | low | storage: pressure: pressure: | -30 | 80 °C 50 °C | | | | | |
| medium for cooling eleme 300°C ⁴ an optional cooling element ⁵ for flange- and DRD-version | can influe n: toleranc | filling fluid filling fluid ence therma | d silicon o d food cor <i>l effects for</i> et $\leq \pm 1.6$ % | il npatible o offset and 6 FSO / tol | d food co bil d span de lerance ba | ompatible overpress overpress pending on and span < | ure: -40 . ure: -10 . <i>installatior</i> ± 0.6 % FS | 300 °C 250 °C n position ai | low low nd filling co | storage: pressure: pressure: | -30 -40 15 | 80 °C 50 °C | | | | | |
| medium for cooling eleme 300°C ⁴ an optional cooling element ⁵ for flange- and DRD-version ⁶ max. temperature of the me temperature of 50 °C (withou | can influe n: toleranc edium for r | filling fluid filling fluid ence therma te band offso nominal pres | d silicon o d food cor <i>l effects for</i> et $\leq \pm 1.6$ % | il npatible o offset and 6 FSO / tol | d food co bil d span de lerance ba | ompatible overpress overpress pending on and span < | ure: -40 . ure: -10 . <i>installatior</i> ± 0.6 % FS | 300 °C 250 °C n position ai | low low nd filling co | storage: pressure: pressure: | -30 -40 15 | 80 °C 50 °C | | | | | |
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| medium for cooling eleme 300°C ⁴ an optional cooling element ⁵ for flange- and DRD-version ⁶ max. temperature of the me temperature of 50 °C (withou Electrical protection Short-circuit protection | can influe n: toleranc edium for r tt cooling (| filling fluid filling fluid ence therma the band offse nominal pre- element). | d silicon o d food cor l effects for et $\leq \pm 1.6$ % ssure gaug | il npatible (coffset and 6 FSO / tol e > 0 bar: | d food co bil d span de lerance ba 150 °C fo | ompatible overpress overpress pending on and span < | ure: -40 . ure: -10 . <i>installatior</i> ± 0.6 % FS | 300 °C 250 °C n position ai | low low nd filling co | storage: pressure: pressure: | -30 -40 15 | 80 °C 50 °C | | | | | |
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| medium for cooling eleme 300°C ⁴ an optional cooling element ⁵ for flange- and DRD-version ⁶ max. temperature of the me temperature of 50 °C (withou Electrical protection Short-circuit protection Reverse polarity protectio Electromagnetic compatib Mechanical stability Vibration Shock Filling fluids Standard Options for process connections Materials Pressure port Housing | can influe n: toleranc edium for r tt cooling o | filling fluid filling fluid ence therma es band offs nominal pre- element). permane no damaç emission 5 g RMS 100 g / 1 silicon oil food com (Mobil DT Halocarb stainless aluminiur | d silicon o d food cor l effects for $et \le \pm 1.6 \%$ ssure gaug nt ge, but als and immu (25 200 1 msec patible oil E FM 32; on and oti steel 1.44 n die cast | il npatible of <i>6</i> FSO / too <i>6</i> FSO / too <i>e</i> > 0 bar: so no fun- unity acco 20 Hz) (with FD Categor hers on n k04 (316L , powder- | d food ca bil d span de lerance ba ction ording to accorn accorn A appro y Code: equest | overpress overpress overpress opending on and span ≤ : r 60 minute: EN 61320 ding to DIN ding to DIN val) | ure: -40 . ure: -10 . <i>installatior</i> ± 0.6 % FS s with a ma b N EN 600 N EN 600 Registration | 300 °C 250 °C n position ar SO ax. environr 68-2-6 68-2-27 on No.: 13 | low low ad filling co mental 30662) | storage: pressure: pressure: | -30 -40 15 | 80 °C 50 °C | | | | | |
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| Explosion protection | | | | | | |
|---|---|--|--|--|--|--|
| Approval AX12-XMP i | IBExU 05 ATEX 1106 X | | | | | |
| | stainless steel field housing: zone 0: II 1G Ex ia IIC T4 Ga / II 1D Ex ia IIIC T85 °C Da | | | | | |
| | aluminium die cast case: zone 1: II 2G Ex | ia IIB T4 Gb / II 1D Ex ia IIIC T85 °C Da | | | | |
| Safety technical maximum values | U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 0 nF, L _i = 0 |) μH, C _{GND} = 27 nF | | | | |
| Approval AX17-XMP i | IBExU 12 ATEX 1045 X | | | | | |
| (flameproof enclosure) | aluminium die cast case: zone 1: II 2G Ex | | | | | |
| Permissible temperatures for | in zone 0: -20 60 °C with p _{atm} 0.8 bar up | | | | | |
| environment | zone 1 or higher: -25 70 °C (intrinsically safe ve | rsion); -20 70 °C (flameproof enclosure) | | | | |
| Connecting cables | capacitance: signal line/shield also signal line/sign | | | | | |
| (by factory) | inductance: signal line/shield also signal line/sign | al line: 1 µH/m | | | | |
| Miscellaneous | | | | | | |
| Display (optionally) | LC-display, visible range 32.5 x 22.5 mm; 5-digit 7- | | | | | |
| | indication ±9999; 8-digit 14-segment additional disp | olay, digit height 5 mm; | | | | |
| | 52-segement bargraph; accuracy 0.1% ± 1 digit | | | | | |
| Ingress protection | IP 67 | | | | | |
| Installation position | any (standard calibration in a vertical position with the pressure port connection down; | | | | | |
| | differing installation position have to be specified in | | | | | |
| Weight | min. 400 g (depending on housing and mechanical | connection) | | | | |
| Operational life | > 100 x 10 ⁶ pressure cycles | | | | | |
| CE-conformity | EMC Directive: 2004/108/EC Pressure | Equipment Directive: 97/23/EC (module A) ' | | | | |
| ⁷ This directive is only valid for devices v | vith maximum permissible overpressure > 200 bar | | | | | |
| Wiring diagram | | | | | | |
| P Supply + A Supply - R R R | →• + Vs →• - nterface HART →RS232 → PC | | | | | |
| Pin configuration | | | | | | |
| | aluminium die cast case: | stainless steel field housing: | | | | |
| Electrical connections | terminal clamps | terminal clamps | | | | |
| | (clamp section: 2.5 mm ²) | (clamp section: 1.5 mm ²) | | | | |
| Supply + | IN+ | IN+ | | | | |
| Supply – | IN- | IN- | | | | |
| Test | Test | - | | | | |
| | | | | | | |

Housing designs ⁸ (dimensions in mm)

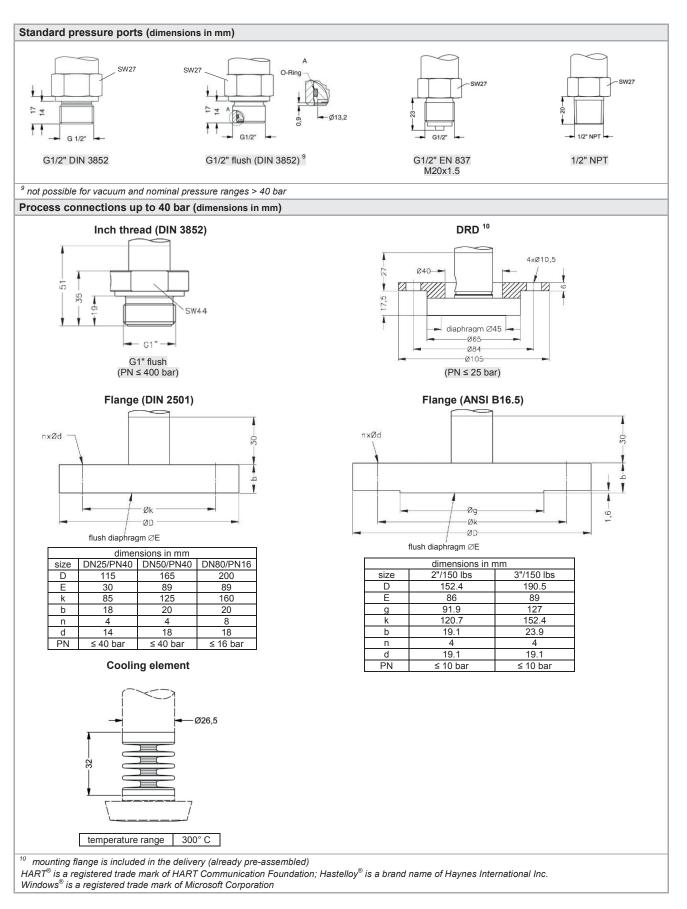
Shield





7

8



This document contains product specifications; properties are not guaranteed. Subject to change without notice.

XMP i Ordering Code

| XMP i | | []]-□-□-□-□] |
|--|--|----------------|
| Pressure gauge | 5 1 1 | |
| absolute ¹ | 5 1 2 | |
| 0 0.4 ¹ 0 1 | 4 0 0 0 1 0 0 1 | |
| 0 2 0 4 | 2 0 0 1 | |
| 0 10 0 20 | 4 0 0 1 1 0 0 2 2 0 0 2 4 0 0 2 | |
| 0 40 0 100 | 4 0 0 2 | |
| 0 200 0 400 | 2 0 0 3 | |
| 0600 -0.4 0.4 | 4 0 0 3 6 0 0 3 S 4 0 0 | |
| -1 1 -1 2 | 6 0 0 3 S 4 0 0 S 1 0 2 V 2 0 2 V 4 0 2 V 1 0 3 | |
| -1 4 | V 2 0 2 V 4 0 2 | |
| -1 10 customer | V 1 0 3 9 9 9 9 | consult |
| Design Aluminium die cast case | | |
| with display without display | A 0 A N | |
| Stainless steel field housing with display | FV | |
| without display customer | F N 9 9 | consult |
| Output Intrinsic safety 4 20 mA / 2-wire | | |
| with HART [®] -communication | 1 | |
| Intrinsic safety Ex d 4 20 mA / 2-wire (flameproof enclosure) | G | |
| with HART [®] -communication ² customer | 9 | consult |
| Accuracy 0.1 % | 1 | |
| Electrical connection terminal clamp alu housing | A K 0 | |
| terminal clamp field housing customer | 8 8 0 9 9 9 | consult |
| Mechanical connection Standard pressure connections | 5,5,5, | |
| G1/2" DIN 3852 G1/2" DIN 3852 with 3 | 1 | 0 0 |
| flush sensor | F | |
| G1/2" EN 837 1/2" NPT | 2 N | |
| Process connections (up to 40 bar) G1" with flush welded | 7 | 3 1 |
| diaphragm (DIN 3852) Flange DN 25 / PN 40 (DIN 2501) | | |
| Flange DN 50 / PN 40 (DIN 2501) Flange DN 80 / PN 16 (DIN 2501) | F | 1 4 |
| Flansch DN 2" / 150 lbs (ANSI B16.5) ⁴ Flansch DN 3" / 150 lbs (ANSI B16.5) ⁴ | F | 3 3 |
| DRD Ø 65 mm ⁻⁵ Diaphragm | D | R D |
| Stainless steel 1.4435 (316L) Hastellov ^{® 6} | | 1 H |
| Tantal ^{6,7} | | T consult |
| Inch thread: FKM | | 1 |
| EN 837: without (welded version) ⁹ | | 7 |
| DRD, flange: without | | 0 |
| Filling Fluids Silicon oil | | 1 |
| food compatible oil ⁶ Halocarbon ⁶ | | 2 C consult |
| customer Special version | | 9 consult |
| standard with cooling element up to 300 °C 6 | | 0 0 0 2 0 0 |
| special compensation -40 +60 °C ¹⁰ ▲ if setting range shall be different from nominal range please | specify in your order | 0 2 2 |

 \clubsuit if setting range shall be different from nominal range please specify in your order 1 absolute pressure possible from 1 bar

absolute pressure possible from 1 bar 2 only possible in combination with aluminium die cast case 3 not possible for vacuum ranges and pressure ranges > 40 bar 4 2'/150 lbs and 3'/150 lbs possible for nominal pressure ranges P_N ≤ 10 bar 5 mounting flange is included in the delivery (already pre-assembled) 6 only possible with process connections

 7 tantal diaphragm possible with nominal pressure ranges from 1 bar 8 min. permissible temperature from -15 °C, possible for nominal pressure ranges $P_{\rm N}$ < 100 bar

⁹ possible with pressure ranges between 1 bar and 40 bar
 ¹⁰ option for version without display

HART® is a registered trade mark of HART Communication Foundation; Hastelloy® is a brand name of Haynes International Inc.

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER 10



XMP ci

Process Pressure Transmitter with HART[®]-communication

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 60 mbar up to 0... 20 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:5
- two chamber aluminium die cast case or stainless field housing
- internal or flush mounted capacitive ceramic sensor
- HART[®]-communication
- IS-version: Ex ia = intrinsically safe version
- diaphragm Al₂O₃ 99.9 %

Optional versions

- IS-version: Ex d = flameproof enclosure
- with integrated display and operating module
- several process connections (thread, flange, DRD etc.)

The process pressure transmitter XMP ci measures the pressure of gases, steam and fluids. The special-developed capacitive ceramic sensor for this transmitter has a high overpressure capability and excellent media stability.

Several process connections e.g. thread or flange are available. The transmitter is as a standard equipped with HART®-communication, the customer can choose between a two chamber aluminum die cast case or a stainless field housing.

Preferred areas of use are



Oil and gas industry







Chemical and petrochemical industry

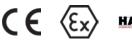
Preferred using in



Fuel and Oil



aggressive Media



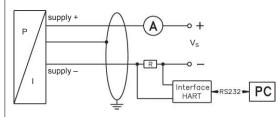
HART

| Pressure ranges ¹ | [hey] | 0.00 | 0.40 | 0.4 | 4 | 0 | F | 10 | 20 |
|--|----------------|------------------------------|--------------------------------|---------------------------|----------------------|------------------------------------|-------------------------|----------------------------|----------|
| Nominal pressure gauge | [bar] | 0.06 | 0.16 | 0.4 | 1 8 | 2 15 | 5 25 | 10 35 | 20 45 |
| Overpressure Permissible vacuum | [bar] [bar] | -0.2 | -0.3 | ÷ | 0.5 | 15 | - | 1 1 | 40 |
| ¹ On customer request we adjust | | - | | | | he turn-down-n | | - | |
| Output signal / Supply | life dev | ices by soliwar | e lo line requi | eu pressure r | anges. within t | ne tum-down-po | 5551511119 (514111 | ing at 0.02 bar) | |
| Standard | | 2-wire: 4 | 20 m∆ | | | | | | |
| | | intrinsically | safe version | | | tion / $V_s = 12$ | 28 V _{DC} | | |
| Option | | max. 25 mA | | iciosure / v | /S = 13 28 | V _{DC} | | | |
| Current consumption Performance | | max. 25 m/ | 1 | | | | | | |
| Accuracy ² | | | | | | | | | |
| Accuracy | | nominal pre | ssure < 1 ba ssure ≥ 1 ba | ar: ≤±0. | 2 % FSO 1 % FSO | | | | |
| | | | pressure rar ar up to 0.4 l | | $\leq \pm (0.2 + ($ | (TD-1) x 0.02) | % FSO | | |
| | | | pressure rar | nges: | < + (0 1 + (| TD-1) x 0.01) | % ESO | | |
| | | from 1 bar u | | | | · · · · | /0100 | | |
| | | with turn-do | wn = nomina | al pressure | range / adjust | | | | |
| Permissible load | | $R_{max} \leq [(V_S - V_S)]$ | - V _{S min}) / 0.0 | 2 A] Ω | lo | ad during HA | RT [®] -commur | nication: R _{min} | = 250 Ω |
| Influence effects | | | 5 % FSO / 10 | V | pe | ermissible loa | d: 0.05 % FS | SO / kΩ | |
| Long term stability | | ≤±0.1%F | | | | | | | |
| Response time | | | | | f electronic da | amping | mea | asuring rate § | 5/sec |
| Adjustability | | electronic d offset 0 8 | 0 % FSO | | nin. 0.02 bar) | | | | |
| ² accuracy according to IEC 6077 | 70 <u> </u> | | | | | | | | |
| Thermal errors / Permissib | | | | ity, hysteresi | s, repeatability) | | | | |
| Thermal error | ie tem | | urn_down) % | 6 ESO / 10 | k in compens | ated range -2 | 0 80 °C | | |
| Permissible temperatures ³ | | without disp | | | | nvironment: -4 | | storage: -4 | 0 80° C |
| | | with display | | m: -25 12 | | nvironment: -2 | | storage: -3 | |
| ³ for pressure port of PVDF the m | ninimum | | | | | | | | |
| Electrical protection | | | | | | | | | |
| Short-circuit protection | | permanent | | | | | | | |
| Reverse polarity protection | | no damage. | but also no | function | | | | | |
| Electromagnetic compatibility | V | emission ar | d immunity | according to | EN 61326 | | | | |
| Mechanical stability | , | onnoonon ai | | according to | | | | | |
| Vibration | | | 2000 11- | •) | | | | | |
| | | | 0 2000 Hz | _) | | | | | |
| Shock | | 100 g / 11 n | ISEC | | | | | | |
| Materials | | | | | | | | | |
| Pressure port Standard | | | eel 1.4404 (3 | 316L) | | | | | |
| Optionally for G1 1/2" flush | | PVDF | | | | | | | |
| Housing | | | | der-coated | or stainless s | teel 1.4404 (3 | 516L) | | |
| Cable gland | | brass, nicke | | | | | | | |
| Viewing glass | | laminated s | | | 10-00 | | | | |
| Seals (media wetted) | | EPDM (peri | | | 125 °C) 0 125 °C) | | | | |
| Diaphragm | | others on re ceramics Al | | | | | | | |
| | | | | bracm | | | | | |
| Media wetted parts | | pressure po | rt, seal, diap | mayin | | | | | |
| Explosion protection | | | | | | | | | |
| Approval AX12-XMP ci (intrinsically safe version) | | stainless ste | | sing: zone 0 | | Ex ia IIC T4 Ga F4 Gb / II 1D E | | | °C Da |
| Safety techn. maximum value | es | | | | | = 0 µH, C _{GND} = | | | |
| Approval AX17-XMP ci (flameproof enclosure) | | IBExU 12 A | TEX 1045 X lie cast case | | | Ex d IIC T5 Gt | | | |
| Permissible temperatures for environment | | in zone 0: -2 | 20 60 °C v | vith p _{atm} 0.8 | bar up to 1.1 | | | enclosure) | |
| ⁴ The designation depends on the | nomin | | , | | , | | • • | / | |
| For nominal pressure ranges > | | | | | | | | | |

12

Miscellaneous Display (optionally) LC-display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm; 52-segement bargraph; accuracy 0.1% ± 1 digit Ingress protection IP 67 Installation position any Weight min. 400 g (depending on housing and mechanical connection) Operational life > 100 x 10⁶ pressure cycles CE-conformity EMC Directive: 2004/108/EC

Wiring diagram

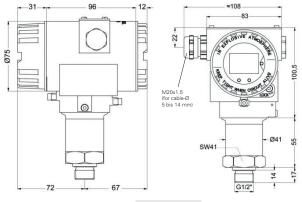


Pin configuration

| | aluminium die cast case: | stainless steel field housing: |
|------------------------|---------------------------------------|---------------------------------------|
| Electrical connections | terminal clamps | terminal clamps |
| | (clamp section: 2.5 mm ²) | (clamp section: 1.5 mm ²) |
| Supply + | IN+ | IN+ |
| Supply – | IN- | IN- |
| Test | Test | - |
| Shield | <u>_</u> | |

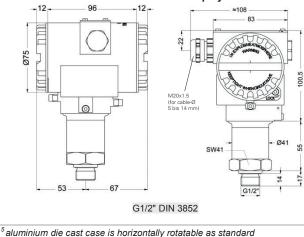
Housing designs ⁵ (dimensions in mm)

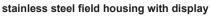
aluminium die cast case with display

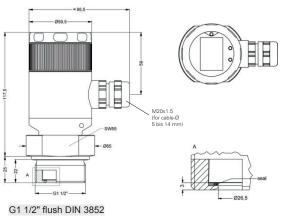


G1/2" DIN 3852

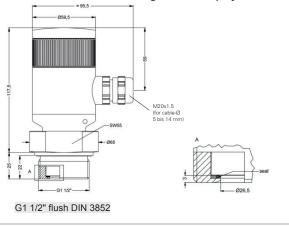
aluminium die cast case without display

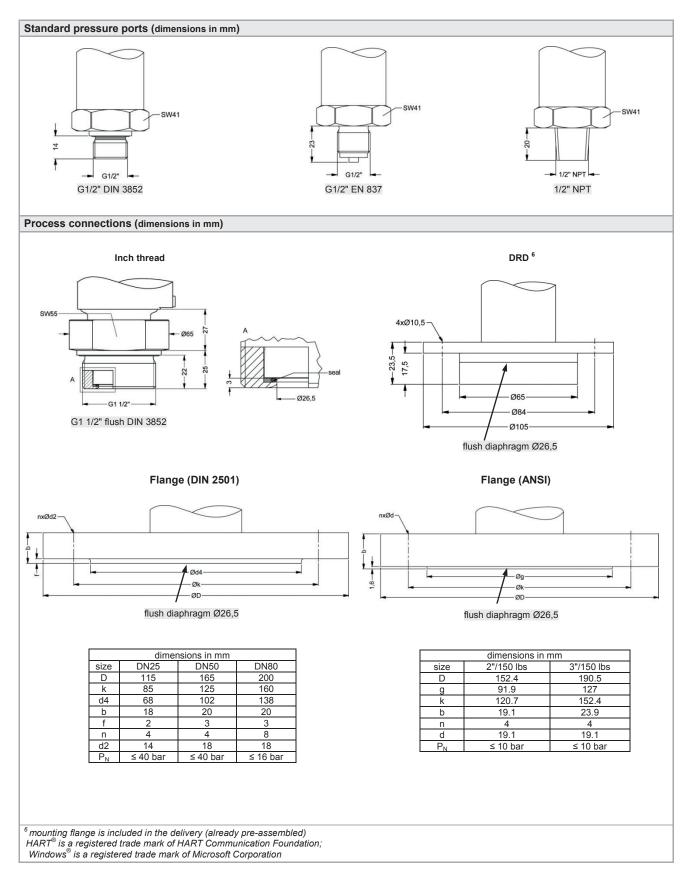






stainless steel field housing without display





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| Pressure input guge (b) C <thc< th=""> C C C</thc<> | XMP ci | |]-[]]] | |
|---|---|------------------------|--------|----------|
| input base | Pressure | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | _ |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | |
| 0.4 4 0 0 0 0 1 0 0 0 0 2 2 0 0 1 2 2 0 0 1 0 1 0 0 2 0 1 0 0 0 0 1 0 0 2 0 1 0 0 0 0 1 0 0 2 0 1 0 0 0 0 1 0 0 0 0 0 0 | | | | |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | | 4 0 0 0 | | |
| 5 5 6 0 1 0 1 0 1 0 1 0 1 0 | | 1 0 0 1 | | |
| 10 10 10 0 2 0 | | | | |
| 20 2 0 0 1 | | | | |
| customer 9 9 9 0< | | | | |
| Design Muminum dir cast case With display A | | 9 9 9 9 | | consult |
| with display A N <t< td=""><td></td><td></td><td></td><td>concar</td></t<> | | | | concar |
| without display A N | Aluminium die cast case | | | |
| Stainless steel field housing with display F V I< | | | | |
| with display customer F V | | AN | | |
| without display customer P N </td <td></td> <td></td> <td></td> <td></td> | | | | |
| Customer 9 9 0< | | | | |
| Output Output Image of the state of the | | | | consult |
| Intrinsic safety 4 20 mA / 2-wire (Intrinsic safety 4 20 mA / 4-wire (Intrinsic safety 4 20 | | | | Conoun |
| Intrinsic safety of 420 mA /2-wire (flamerpoof enclosure) with HART®-communication ' ustomer G I | Intrinsic safety 4 20 mA / 2-wire | | | |
| (fameproof enclosure) G I | | | | |
| with HARTE-communication 1 outsomer outsomer <thoutsomer< th=""> outsomer outsom</thoutsomer<> | | | | |
| customer 9 a< | | | | |
| Accuracy 0.1% 1 0 <th< td=""><td></td><td>9</td><td></td><td>consult</td></th<> | | 9 | | consult |
| electrical connection A K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 K 0 0 0 0 0 0 0 0 <td></td> <td></td> <td></td> <td>Contourt</td> | | | | Contourt |
| Electrical connection k | 0.1 % | 1 | | |
| terminal clamp field housing A K 0 <th0< th=""> <th1< td=""><td></td><td>9 9</td><td></td><td>consult</td></th1<></th0<> | | 9 9 | | consult |
| terminal clamp field housing 8 8 0 <td< td=""><td></td><td></td><td></td><td></td></td<> | | | | |
| Mechanical connection: I <thi< th=""> I <thi< th=""> <thi< th=""> I <thi< th=""></thi<></thi<></thi<></thi<> | | | | |
| Mechanical connection: I <thi< th=""> I <thi< th=""> <thi< th=""> I <thi< th=""></thi<></thi<></thi<></thi<> | | | | consult |
| standard pressure connections: 1 0 < | | | | consult |
| G1/2" EN 837 2 0 <t< td=""><td></td><td></td><td></td><td></td></t<> | | | | |
| 1/2" NPT N 0< | | | | |
| process connections: M 0 0 I | | | | |
| G 1 1/2" DIN flush (DIN 3852) M 0 O I | | N 0 0 | | |
| Flange DN 25 / PN 40 (DIN 2501) F 2 0 1 | | MOO | | |
| Flange DN 80 / PN 16 (DIN 2501)FII <th< td=""><td></td><td>F 2 0</td><td></td><td></td></th<> | | F 2 0 | | |
| Flange DN 80 / PN 16 (DIN 2501)FII <th< td=""><td></td><td>F 2 3</td><td></td><td></td></th<> | | F 2 3 | | |
| Flansch DN 2" / 150 lbs (ANSI B16.5) 2 F32IIIIIFlansch DN 3" / 150 lbs (ANSI B16.5) 2 F33II< | Flange DN 80 / PN 16 (DIN 2501) | $F \left[1 \right] 4$ | | |
| DRD Ø 65 mm ³ D R D D R D D R D C I | Flansch DN 2" / 150 lbs (ANSI B16.5) 2 | F 3 2 | | |
| customer 9 9 9 9 9 0< | Flansch DN 3" / 150 lbs (ANSI B16.5) 2 | F 3 3 | | |
| Diaphragm Image: Ceramics Al_2O_3 99,9% C Image: Ceramics Al_2O_3 99,9% Image: Ceramics Al_ | | | | ooncult |
| Ceramics Al ₂ O ₃ 99,9% C C I <thi< th=""> I I <thi< th=""></thi<></thi<> | Disulars and | 8 8 8 | | consult |
| customer 9 I< | Ceramics Al ₂ O ₃ 99.9% | С | | |
| Seals I <td></td> <td></td> <td></td> <td>consult</td> | | | | consult |
| EPDM 4 3 | Seals | | | |
| customer 9 I I I consult Pressure port I I I I I standard: I I I I I option for G 1 1/2" flush: I I I I PVDF 4 B I I Special version I I I Standard I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I I< | FKM ⁴ | | | |
| Pressure port Image: Standard: standard: Image: Stainless steel 1.4404 (316L) option for G 1 1/2" flush: Image: Standard PVDF 4 Image: Standard Special version Image: Standard standard Image: Standard | | | | |
| standard: 1 1 1 1 1 Option for G 1 1/2" flush: PVDF 4 B 1 1 1 1 Special version 9 0 0 0 0 | | 9 | | consult |
| Stainless steel 1.4404 (316L) 1 I <t< td=""><td></td><td></td><td></td><td></td></t<> | | | | |
| option for G 1 1/2" flush: Image: Special version Image: Special vers | | 1 | | |
| PVDF ⁴ B Consult Customer 9 V Consult Special version 0 0 0 0 | | | | |
| customer 9 I consult Special version I I standard 0 0 I | | B | | |
| Special version 0 0 0 | | | | consult |
| standard000customer999consult | Special version | | | |
| customer 9 9 9 consult | | | 0 0 0 | |
| | customer | | 9 9 9 | consult |

$\underline{\Lambda}$ if setting range shall be different from nominal range please specify in your order

¹ only possible in combination with aluminium die cast case

 2 2"/150 lbs and 3"/150 lbs only possible for nominal pressure ranges PN $\,\leq$ 10 bar

 $^{\rm 3}$ mounting flange is included in the delivery (already pre-assembled)

 4 permissible temperature FKM -25 \dots 125 °C, EPDM -40 \dots 125 °C, PVDM -30 \dots 125 °C

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This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER



x act i

Precision **Pressure Transmitter** For Food / Beverage And **Pharmaceutical Industry** And Biotechnology

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- turn-down 1:10
- hygienic version
- flush welded diaphragm
- several process connections (G1" cone, Clamp, dairy pipe, etc.)
- integrated display and operating module

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases and dust
- HART[®]-communication
- cooling element for media temperatures up to 300 °C

The precise pressure transmitter x act i has been especially designed for the food / beverage, pharmaceutical industry and biotechnology and measures vacuum, gauge and absolute pressure of gases, steam and fluids up to 40 bar.

Several process connections e.g. thread or hygienic versions like Varivent[®], dairy pipe and Clamp with a flush welded diaphragm are available, which can be combined with a cooling element for media temperatures up to 300 °C. The robust stainless steel globe housing has a high ingress protection IP 67 and all characteristics for residue-free and а antibacterial cleaning.

Preferred areas of use are



Food and Beverage



Pharmaceutical Industry

Material and test certificates

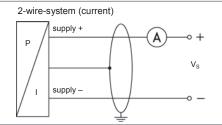
- inspection certificate 3.1 according to EN 10204
- test report 2.2 ► according to EN 10204

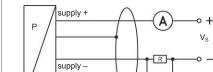


| Pressure ranges ¹ | | 1 | 1 | | | | | |
|---|--------------|--------------------------|--------------------------------|-----------------|------------------------|--------------------------|------------------|--------------------|
| Nominal pressure gauge / abs. | [bar] | 0.4 | 1 | 2 | 4 | 10 | 20 | 40 |
| Dverpressure | [bar] | 2 | 5 | 10 | 20 | 40 | 80 | 105 |
| Burst pressure | [bar] | 3 | 7,5 | 15 | 25 | 50 | 120 | 210 |
| higher pressure ranges on reque | est; on dem | nand we adjust | | hin the turn-do | wn-possibility by s | oftware on the re | quired pressure | e ranges |
| absolute pressure possible from | | | | | , , , , , | | | |
| | | | | | | | | |
| /acuum ranges | | | | | | | | |
| Nominal pressure gauge | [bar] | -0.4 0.4 | | 1 | -1 2 | -1 | 4 | -1 10 |
| Overpressure | [bar] | 2 | | 5 | 10 15 | 20 | | 40 |
| Burst pressure | [bar] | 3 | / | ,5 | 15 | 25 | | 50 |
| Output signal / Supply | | | | | | | | |
| Standard | | 2-wire: 4 | 20 mA / Vs = | = 12 30 Vr | 20 | | | |
| Option | | IS-protection | | -wire: 4 2 | | = 12 28 V _{DC} | | |
| 0,000 | | | | | 0 mA with HART | [®] communicati | on $/V_{s} = 12$ | 28 V _{DC} |
| Current consumption | | max. 25 mA | | | | | | |
| Performance | | | | | | | | |
| Accuracy ³ | : | ≤ ± 0.1 % FS | 0 | The a | ccuracy is calcul | ated as follows | | |
| Perfomance after turn-down | | - turn-down ≤ | 1:5: no chan | | + 0.015 x (turn-o | | | |
| | | - turn-down > | · 1:5: | | urn-down 9: ≤ 0 . | | | 0.16 % FSC |
| Permissible load | | $R_{max} = [(V_s -$ | V _{S min}) / 0.02 A | | | HART [®] comm | | |
| nfluence effects | | | % FSO / 10 V | - | | load: 0.05 % F | | |
| ong term stability | | | | | eference conditi | | | |
| Response time | · | 100 msec – v | vithout consid | eration of ele | ectronic damping | n mea | asuring rate 1 | 0/sec |
| Adjustability | (| electronic da | mping: 0 10 | 00 sec | | | | |
| | | offset: 0 90 | | | | of span: max. | 1:10 | |
| ³ accuracy according to IEC 6077 | 0 – limit po | int adjustment | (non-linearity, h | ysteresis, rep | eatability) | | | |
| Thermal effects (Offset and | Span) / F | Permissible | temperatures | \$ | | | | |
| Tolerance band 4, 5 | | | O x Turn-Dov | /n | | | | |
| in compensated range | | -20 85 °C | | | | | | |
| Permissible temperatures ⁶ | 1 | medium: | -40 125 | °C for filling | fluid silicon oil | | | |
| | | | | | fluid food compa | tible oil | | |
| | | environment: storage: | -20 70 -30 80 | | | | | |
| Permissible temperature med | | filling fluid sili | | | ressure: -40 | 300 °C vacuu | m pressure: - | 40 150 °C |
| for cooling element 300°C | - | | od compatible | | oressure: -10 2 | | | |
| ⁴ an optional cooling element can | | | | | | | | |
| ⁵ for flange Varivent DRD-versi | ion: toleran | ice band offset | ≤± 1.6 % FSO | / tolerance ba | nd span ≤ ± 0.6 % | FSO | | |
| ⁶ for vacuum ranges and absolute | pressure t | the max. mediu | ım temperature | is 70 °C; | | | | |
| max. temperature of the medium temperature of 50 °C (without co | | | uge > 0 bar: 150 |) °C for 60 min | utes with a max. e | nvironmental | | |
| Electrical protection | oning cicini | ony. | | | | | | |
| Short-circuit protection | | permanent | | | | | | |
| Reverse polarity protection | | | out also no fui | nction | | | | |
| Electromagnetic compatibility | | | immunity acc | | 1 61326 | | | |
| Mechanical stability | | | and and | | | | | |
| Vibration | | 5 g RMS (25 | 2000 Hz) | according | g to DIN EN 600 | 68-2-6 | | |
| Shock | | 100 g / 11 ms | | | to DIN EN 600 | | | |
| Filling fluids | | | | | , , , 2 | | | |
| Standard | | silicon oil | | | | | | |
| Options | | | ble oil (with Fl | DA annroval |) | | | |
| | | | | | , ; NSF Registrati | on No.: 130662 | 2) | |
| | | | ind others on | | | | , | |
| Materials | | | | | | | | |
| Pressure port | | G1" cone Va | rivent [®] , dairy | nine und Cla | imn: stain | ess steel 1.443 | 35 (316 L) | |
| | | DRD and flar | | | | ess steel 1.44 | · · · | |
| Housing | | | ige. el 1.4301 (304 | .) | Stall | 000 31001 1.440 | | |
| | | laminated sa | |) | | | | |
| Viewing glass | | | | oono of dalle | 0.00/ | | | |
| | | none, not inc | luded in the s | cope of deliv | ery | | | |
| | | | | | | | | |
| Seals (media wetted) Diaphragm Standard | | stainless stor | 1 4/25 (216 | 1) | | | | |
| | | | el 1.4435 (316 276 (2.4819) | L) | Tant | alum (possible | from 1 bor on |) on request |

| Explosion protection | |
|--|--|
| Approval AX12-x act i | IBExU 05 ATEX 1106 X zone 0: II 1G Ex ia IIC T4 Ga / II 1D Ex ia IIIC T85 °C Da |
| Safety technical maximum values | U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 0 nF, L_i = 0 μ H, the supply connections have an inner capacity of max. 27 nF to the housing |
| Permissible temperatures for environment | in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar in zone 1: -25 70 °C |
| Connecting cables (by factory) | capacitance: signal line/shield also signal line/signal line: 160 pF/m inductance: signal line/shield also signal line/signal line: 1 µH/m |
| Miscellaneous | |
| Display | LC display, visible range 32.5 x 22.5 mm; 5-digit 7-segment main display, digit height 8 mm, range of indication ±9999; 8-digit 14-segment additional display, digit height 5 mm; 52-segment bargraph; accuracy 0.1% ± 1 digit |
| Ingress protection | IP 67 |
| Installation position | any (standard calibration in a vertical position with the pressure port connection down; differing installation position for $P_N \le 2$ bar have to be specified in the order) |
| Weight | min. 400 g (depending on mechanical connection) |
| Operational life | > 100 x 10 ⁶ pressure cycles |
| CE-conformity | EMC Directive: 2004/108/EC |
| Wiring diagrams | · |

Wiring diagrams





+ 0

Vs

Interface HART

PC

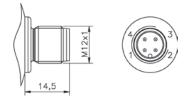
RS232

2-wire-system (current) HART®

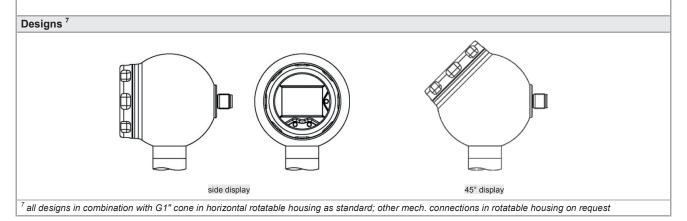
Pin configuration

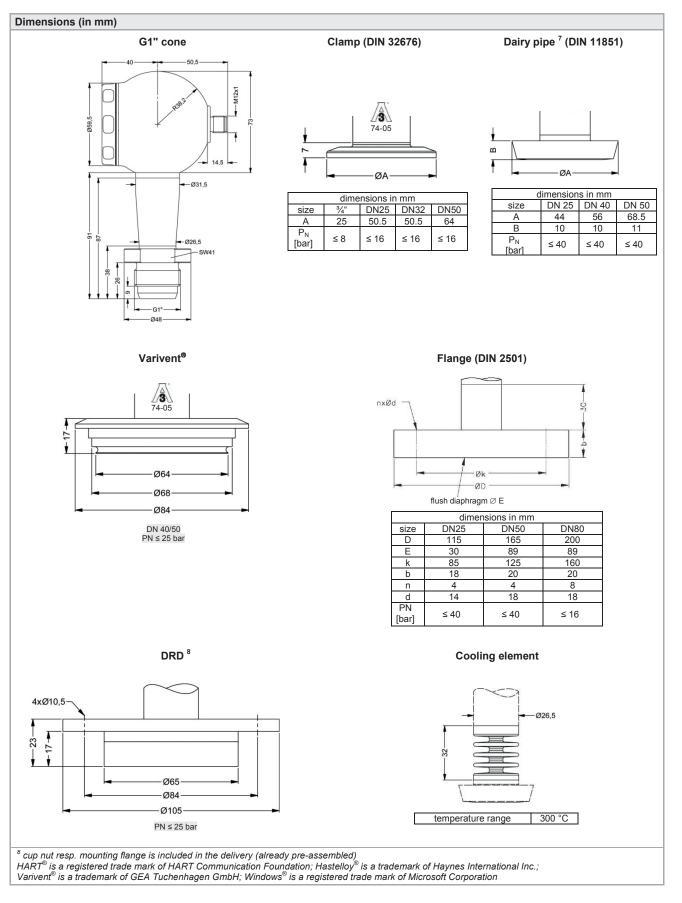
| Electrical connections | M12x1 (4-pin) |
|------------------------|---------------|
| Supply + | 1 |
| Supply – | 3 |
| Shield | plug housing |
| | |

Electrical connections (dimensions in mm)



M12x1 (4-pin)





This document contains product specifications; properties are not guaranteed. Subject to change without notice.

18

x|act i Ordering Code

| x act i | | - | □-□ | -0-0 | | | -0-0 |]-[]· | - | |
|--|-------|----------------------|------------|------|----------------|----------------|------|--------|----------------|--------------------|
| Pressure gauge | 5 1 1 | | | | | | | | | |
| absolute ¹ Input [bar] | 5 1 2 | | | | | | | | | |
| 0 0.4 1 | | 4 0 0 0 | | | | | | | | |
| 0 1 0 2 | | 1 0 0 1 2 0 0 1 | | | | | | | | |
| 0 4 | | 4 0 0 1 | | | | | | | | |
| 0 10 0 20 | | 1 0 0 2 2 0 0 2 | | | | | | | | |
| 0 40 | | 4 0 0 2 | | | | | | | | |
| -0.4 0.4 | | S 4 0 0 | | | | | | | | |
| -1 1 -1 2 | | S 1 0 2 V 2 0 2 | | | | | | | | |
| -1 4 | , | V 4 0 2 | | | | | | | | |
| -1 10 customer | | V 1 0 3 9 9 9 9 9 | | | | | | | | consult |
| Design | | 9 9 9 9 9 | | | | | | | | consult |
| side display | | | K H K 4 | | | | | | | |
| 45° display Output | | | K 4 | | | | | | | |
| 4 20 mA / 2-wire | | | 1 | | | | | | | |
| Intrinsic safety 4 20 mA / 2-wire Intrinsic safety 4 20 mA / 2-wire | | | E | | | | | | | |
| with HART [®] -communication | | | L | | | | | | | |
| customer | | | 9 | | | | | | | consult |
| Accuracy 0.1 % | | | | 1 | | | | | | |
| Electrical connection | | | | | | | | | | |
| Male plug M12x1 (4-pin) | | | | N | И 1 0 Э 9 9 | | | | | |
| customer Mechanical connection | | | | , | 9 9 9 9 | | | | | consult |
| G1" cone | | | | | | K 3 1 | | | | |
| Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A | | | | | | C 6 1 C 6 2 | | | | |
| Clamp DN 50 / 2" (DIN 32676) / 3A | | | | | | C 6 3 | | | | |
| Clamp 3/4" (DIN 32676) / 3A Dairy pipe DN 25 (DIN 11851) ² | | | | | | C 6 9 M 7 3 | | | | |
| Dairy pipe DN 40 (DIN 11851) ² | | | | | | M 7 5 | | | | |
| Dairy pipe DN 50 (DIN 11851) ² | | | | | | M 7 6 | | | | |
| Varivent [®] DN 40/50 / 3A Flange DN 25 / PN 40 (DIN 2501) | | | | | | P 4 1 F 2 0 | | | | |
| Flange DN 50 / PN 40 (DIN 2501) | | | | | | F 2 3 | | | | |
| Flange DN 80 / PN 16 (DIN 2501) DRD Ø 65 mm ² | | | | | | F 1 4 | | | | |
| DRD Ø 65 mm ⁻ Diaphragm | | | | | | DRD | | | | |
| Stainless steel 1.4435 (316L) | | | | | | | 1 | | | |
| Hastelloy [®] C-276 (2.4819) Tantalum ³ | | | | | | | H | | | consult |
| Seals | | | | | | | | | | consult |
| without | | | | | | | | 0 | | |
| Filling Fluids silicon oil | | | | | | | | 1 | | |
| food grade oil (FDA) / 3A | | | | | | | | 2 | | |
| Halocarbon customer | | | | | | | | C 9 | | consult consult |
| Special version | | | | | | | | 9 | | CONSUL |
| standard | | | | | | | | | 0 0 0 2 0 0 | |
| with cooling element up to 300°C / 3A | | | | | | | | | 200 | |

 ${\mathbb A}$ if setting range shall be different from nominal range please specify in your order

¹ absolute pressure possible from 1 bar

² cup nut resp. mounting flange is included in the delivery (already pre-assembled)

³ tantal diaphragm possible with nominal pressure ranges from 1 bar
 HART[®] is a registered trade mark of HART Communication Foundation; Hastelloy[®] is a brand name of Haynes International Inc.

Varivent[®] is a brand name of GEA Tuchenhagen GmbH

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

PRECISION PRESSURE TRANSMITTER



x act ci

Precision **Pressure Transmitter for** Food Industry, Pharmacy + **Biotechnology**

Ceramic Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 60 mbar up to 0... 20 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- Turn-Down 1:5
- hygienic version
- flush mounted, capacitive ceramic sensor
- several process connections (inch thread, Clamp, etc.)
- with integrated display and operating module
- diaphragm Al₂O₃ 99.9 %

Optional versions

- IS-version: Ex ia = intrinsically safe version
- HART[®]-communication

The precise pressure transmitter x act ci measures the pressure of gases, steam and fluids. The special-developed capacitive ceramic sensor for this transmitter, which can optionally be delivered in pure ceramic, has a high overpressure capability and excellent media stability.

Several process connections e.g. inch thread or hygienic versions like Varivent®, dairy pipe or Clamp are available. The robust stainless steel globe housing has a high ingress protection IP 67 and all characteristics for a residue-free and antibacterial cleaning.

Preferred areas of use are



Food Industry





Laboratory Techniques

Preferred using in



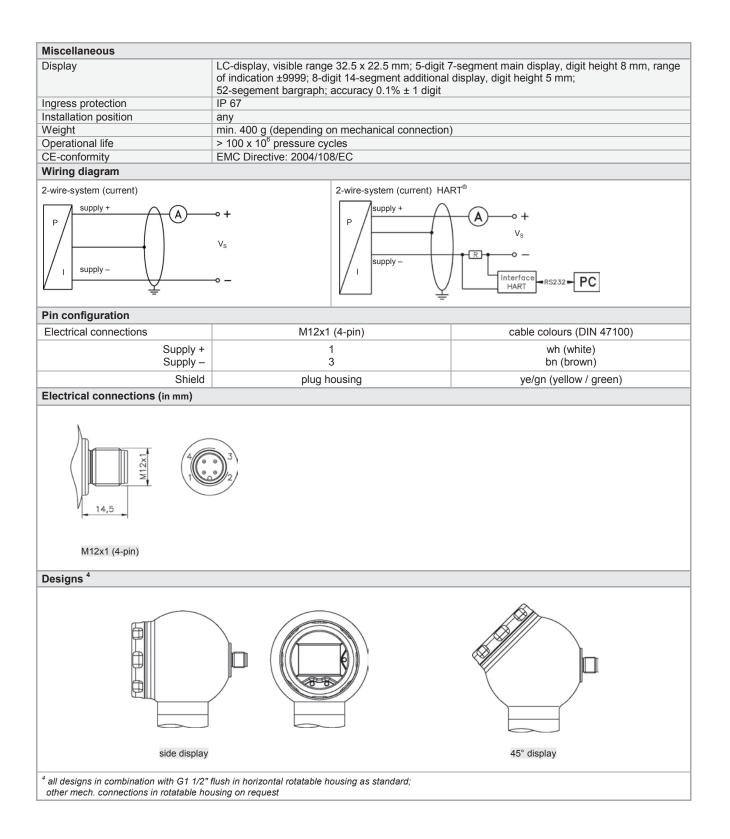
Viscous and pasty media



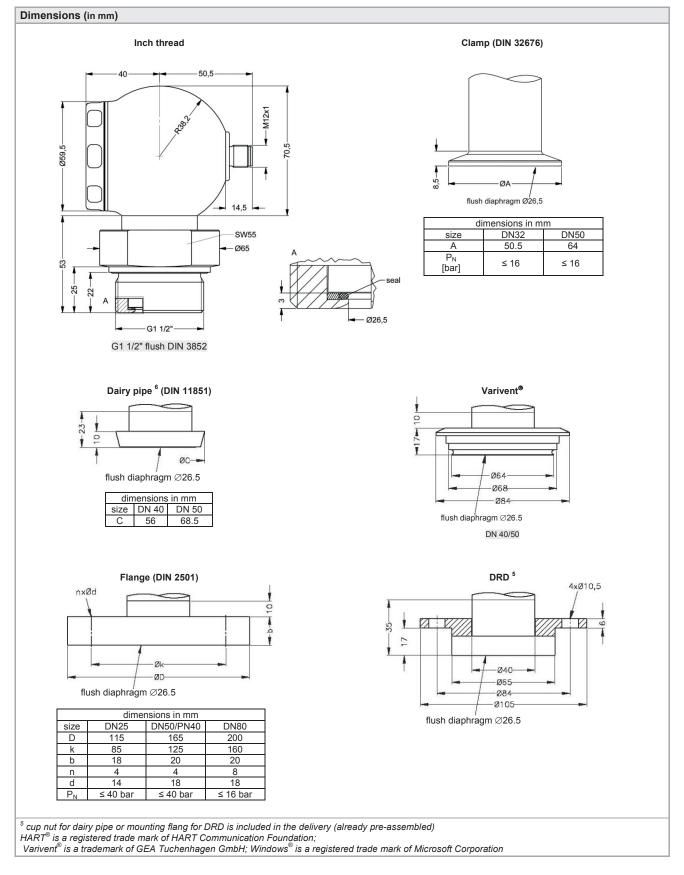
x act ci Technical Data

| Nominal pressure gauge | [bar] 0.06 | 0.16 | 0.4 | 1 | 2 | 5 | 10 | 20 | | | | | |
|---|--|---|---|--|--|----------------------|--------------|-----------|--|--|--|--|--|
| Overpressure | [bar] 2 | 4 | 6 | 8 | 15 | 25 | 35 | 45 | | | | | |
| Permissible vacuum | [bar] -0.2 | -0.3 | - | -0.5 | 10 | - | -1 | 10 | | | | | |
| ¹ On customer request we adjust i | | | | | ne turn-down-r | | - | r). | | | | | |
| Output signal / Supply | , | | | | | ···· | | , | | | | | |
| Standard | 2 wiro: / | 20 mA / \ | / - 12 30 | | | | | | | | | | |
| | 2-1116.2 | 20 MA / V | s = 12 30 | D V DC | | | | | | | | | |
| Option | O surings | 20 mA / \ | / _ 40 _ 00 | | | | | | | | | | |
| IS-protection IS-protection/ HART [®] | 2-wire: 4 | 20 mA / V | $V_{\rm S} = 12 \dots 20$ | ov _{DC} | $V_{2} = 12$ 2 | 8 \/ | | | | | | | |
| · · · · · · · · · · · · · · · · · · · | max. 25 | | TIANT CON | intunication / | vs = 12 2 | O V DC | | | | | | | |
| Current consumption | max. 25 | mA | | | | | | | | | | | |
| Performance | | | | | | | | | | | | | |
| Accuracy ² | | pressure < 1 b | | 2 % FSO | | | | | | | | | |
| | | pressure ≥ 1 b | | ,1 % FSO | | | | | | | | | |
| | | nal pressure ra 6 bar up to 0.4 | | ≤ ± (0.2 + (TE | 0-1) x 0.02) 9 | % FSO | | | | | | | |
| | | • | | | , , | | | | | | | | |
| | | nal pressure ra | nges: | ≤ ± (0.1 + (TE | 0-1) x 0.01) 9 | % FSO | | | | | | | |
| | | ar up to 20 bar -down = nomin | al pressure | range / adjust | d range | | | | | | | | |
| Permissible load | | | | | | DT [®] comm | inication: D | - 250.0 | | | | | |
| | | $R_{max} ≤ [(V_S - V_{S min}) / 0.02 A] Ω$ load during HART [®] communication: $R_{min} = 250$ supply: 0.05 % FSO / 10 V permissible load: 0.05 % FSO / kΩ | | | | | | | | | | | |
| Influence effects | | | 0 V | ре | rmissible loa | Id: 0.05 % F | ·SO / kΩ | | | | | | |
| Long term stability | | % FSO / year c – without con | aideration o | f alastropia da | maina | | maggining | ata Elaa | | | | | |
| Response time Adjustability | | c damping: 0 | | r electronic da | mping | | measuring | ale 5/sec | | | | | |
| Adjustability | | 80 % FSO | . 100 360 | | | | | | | | | | |
| | | n of span: max | . 1:5 (span | min. 0.02 bar) | | | | | | | | | |
| ² accuracy according to IEC 6077 | | | | | | | | | | | | | |
| Thermal errors / Permissibl | | | | | | | | | | | | | |
| Thermal error | | 2 x turn-down) | % FSO / 10 | K in compensa | ated range -2 | 20 80 °C | | | | | | | |
| Permissible temperatures | | -25 125 °C | | environment: | v | | storage: -30 |) 80 °C | | | | | |
| Electrical protection | | | | | | | g | | | | | | |
| Short-circuit protection | permane | nt | | | | | | | | | | | |
| Reverse polarity protection | | ige, but also no | function | | | | | | | | | | |
| Electromagnetic compatibility | | and immunity | | EN 61326 | | | | | | | | | |
| Mechanical stability | , , , | · •···•, | | | | | | | | | | | |
| | E a DMC | | 7) | | | | | | | | | | |
| * | | | | | | | | | | | | | |
| Vibration | | <u>; (20 2000 H</u> 1 msec | ۷) | | | | | | | | | | |
| Vibration Shock | 100 g / 1 | | <u> </u> | | | | | | | | | | |
| Vibration Shock Materials | 100 g / 1 | 1 msec | | n | | | | | | | | | |
| Vibration Shock Materials | 100 g / 1 | 1 msec ad, DRD and fl | ange versio | | steel 1 4404 | (3161) | | | | | | | |
| Vibration Shock Materials | 100 g / 1 | 1 msec | ange versio | | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials | inch three Varivent | 1 msec ad, DRD and fl | ange versio d clamp: | stainless | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing | 100 g / 1 inch thre Varivent optional | 1 msec ad, DRD and fl [®] , dairy pipe an | ange versio d clamp: ush (DIN 38 | stainless | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing | 100 g / 1 | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu | ange versio d clamp: ush (DIN 38 | stainless | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing | 100 g / 1 inch thre Varivent optionall stainless Iaminate | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (| ange versio d clamp: ush (DIN 385 304) | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp | ange versio d clamp: ush (DIN 385 304) | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request | ange versio d clamp: ush (DIN 385 304) | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % | ange versio d clamp: ush (DIN 38 304) erature: -25 | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request | ange versio d clamp: ush (DIN 38 304) erature: -25 | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % | ange versio d clamp: ush (DIN 38 304) erature: -25 | stainless 52): PVDF | steel 1.4404 | (316L) | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics pressure | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s steel 1.4301 (; d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % e port, seals, dia GATEX1106 X | ange versio d clamp: ush (DIN 38: 304) erature: -25 aphragm | stainless 52): PVDF 125 °C) | | | | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci | 100 g / 1 inch thre Varivent optionall stainless Iaminate FKM (pe EPDM others o ceramics pressure IBExU05 zone 0/1 | 1 msec ad, DRD and fl [®] , dairy pipe an y for G1 1/2" flu s teel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia | ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW, | stainless 52): PVDF 125 °C) Gb / II 1D Ex ia C _i = 0 nF, L _i = | a IIIC T85 °C 0 μH, | Da | ng | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci Safety technical maximum va Permissible temperatures for | 100 g / 1 inch thre optionall stainless laminate FKM (per EPDM others or ceramics) pressure IBExU02 zone 0/1 alues U _i = 28 N the supp in zone 0 | 1 msec ad, DRD and fl \mathbb{P} , dairy pipe an y for G1 1/2" flu a steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia ATEX1106 X 3 : II 1/2G Ex iz /, I ₁ = 93 mA, P ly connections): -20 | ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW, have an inn 60 °C wit | stainless 52): PVDF 125 °C) Gb / II 1D Ex ia C _i = 0 nF, L _i = | a IIIC T85 °C 0 μH, max. 27 nF 1 | Da o the housin | ng | | | | | | |
| Vibration Shock Materials Pressure port Housing Viewing glass Seals Diaphragm Media wetted parts Explosion protection Approval AX12-x act ci Safety technical maximum va | 100 g / 1 inch thre optionall stainless laminate FKM (pe EPDM others o ceramics pressure IBExU05 zone 0/1 alues U _i = 28 N the supp in zone 0 ab zone | 1 msec ad, DRD and fl \mathbb{P} , dairy pipe an y for G1 1/2" flu a steel 1.4301 (d safety glass rmissible temp n request s Al ₂ O ₃ 99.9 % port, seals, dia ATEX1106 X 3 : II 1/2G Ex iz /, I ₁ = 93 mA, P ly connections): -20 | ange versio d clamp: ush (DIN 383 304) erature: -25 aphragm a IIC T4 Ga/4 ; = 660 mW, have an inn 60 °C wit 70 °C | stainless 52): PVDF 125 °C) Gb / II 1D Ex ia $C_i = 0$ nF, $L_i =$ er capacity of th p _{atm} 0.8 bar signal line/sig | a IIIC T85 °C 0 μH, max. 27 nF f up to 1.1 bar nal line: 160 | : Da o the housin | ng | | | | | | |

x|act ci Technical Data



x act ci Technical Data



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| x act ci | | - | |
|--|--------------------|--------|---------|
| Pressure | | | |
| gauge | 5 1 E | | |
| | | | |
| 0.06 | 0 6 0 0 | | |
| 0.16 | | | |
| 0.4 | | | |
| 2 | | | |
| 5 | 2 0 0 1 5 0 0 1 | | |
| 10 | | | |
| 20 | | | |
| customer | 9 9 9 9 | | consult |
| Design | | | |
| side display | КН | | |
| 45° display | К 4 | | |
| Output 4 20 mA / 2-wire | | | |
| Intrinsic safety 4 20 mA / 2-wire | | | |
| Intrinsic safety 4 20 mA / 2-wire | | | |
| with HART [®] -communication | | | |
| customer | 9 | | consult |
| Accuracy | | | |
| 0.1 % | 1 | | |
| customer | 9 | | consult |
| Electrical connection | | | |
| Male plug M12x1 (4-pin) | M 1 0 9 9 9 | | |
| customer | 9 9 9 | | consult |
| Mechanical connection G 1 1/2" DIN flush (DIN 3852) | M 0 0 | | |
| Clamp DN 32 / 1 1/2" (DIN 32676) | C 6 2 | | |
| Clamp DN 50 / 2" (DIN 32676) | C 6 2 C 6 3 | | |
| Dairy pipe DN 40 (DIN 11851) | M 7 5 | | |
| Dairy pipe DN 50 (DIN 11851) | M 7 6 | | |
| Varivent [®] DN 40/50 | P 4 1 | | |
| Flange DN 25 / PN 40 (DIN 2501) | F 2 0 | | |
| Flange DN 50 / PN 40 (DIN 2501) | F 2 3 | | |
| Flange DN 80 / PN 16 (DIN 2501) | F 1 4 | | |
| DRD Ø 65 mm | DRD | | |
| customer | 9 9 9 | | consult |
| Diaphragm Ceramics Al ₂ O ₃ 99,9% | | | |
| customer | C 9 | | consult |
| Seals | | | consult |
| FKM | 1 | | |
| EPDM | 3 | | |
| customer | 9 | | consult |
| Pressure port | | | |
| standard: Stainless steel 1.4404 (316L) | 1 | | |
| option for G 1 1/2" flush: PVDF | В | | |
| customer | 9 | | consult |
| Special version standard | | 0 0 0 | |
| customer | | 999 | consult |
| customer | | 010101 | consult |

 Λ if setting range shall be different from nominal range please specify in your order

¹ cup nut resp. mounting flange is included in the delivery (already pre-assembled)

HART® is a registered trade mark of HART Communication Foundation; Varivent® is a brand name of GEA Tuchenhagen GmbH

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PRECISION PRESSURE TRANSMITTER



DMP 331Pi

Precision Pressure Transmitter

pressure ports and process connections with flush welded stainless steel diaphragm

accuracy according to IEC 60770: 0,1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Product characteristics

- excellent temperature response 0.04 % FSO / 10K
- processing of the sensor signal using digital electronics
- process connections suitable for hygienic application
- vacuum resistant

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- communication interface for adjustment of offset, span and damping

The precision pressure transmitter DMP 331Pi demonstrates the further development of well-tried industrial pressure transmitter DMP 331P.

The signal from the specially designed piezoresistive stainless steel sensor is processed by the newly developed digital electronic system, performing thus an active compensation of sensor-specific deviations such as hysteresis, thermal errors and non-linearity.

The temperature range of -40 \dots 125 °C can be extended by the integration of a cooling element up to 300 °C.

Preferred areas of use are



Laboratory techniques



Food and beverage



Pharmaceutical industry

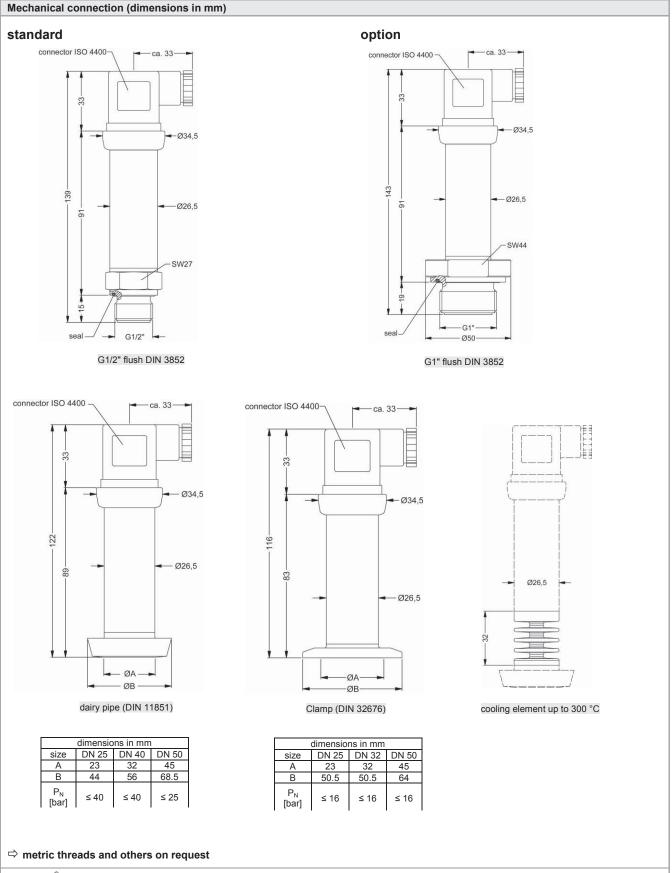


| Pressure ranges ¹ | | | | | | | | |
|---|---|---|---|--|--|--|--|--------------|
| Nominal pressure | | | | | | 40 | | |
| gauge / absolute ² | [bar] | 0.4 | 1 | 2 | 4 | 10 | 20 | 40 |
| Overpressure | [bar] | 2 | 5 | 10 | 20 | 40 | 80 | 105 |
| Burst pressure ≥ | [bar] | 3 | 7,5 | 15 | 25 | 50 | 120 | 210 |
| Vacuum resistance | | $P_N \ge 1$ bar: u $P_N < 1$ bar: c | | uum resistan | ce | | | |
| ¹ On customer request we ac ² absolut pressure permissibl | | | urn-down-pos | sibility by softw | are on the requi | ired pressure range. | | |
| Vacuum ranges | | | | | | | | |
| Nominal pressure | [bar] | -0.4 0.4 | -1 | 1 | -1 2 | -1 4 | | -1 10 |
| Overpressure | [bar] | 2 | 5 | | 10 | 20 | | 40 |
| Burst pressure ≥ | [bar] | 3 | 7.5 | | 15 | 25 | | 50 |
| Output signal / Supply | | | | | | | | |
| Standard | | 2-wire: 4 2 | 0 mA / V | ′ _s = 12 36 ′ | V _{DC} | | | |
| Option IS-protection | | 2-wire: 4 2 | 0 mA / V | ′ _s = 14 28 ′ | | | | |
| Options | | | | ommunication | | | | |
| | | 3-wire: 0 1 | 0 V / V | ′ _s = 14 30 ′ | V _{DC} | | | |
| ³ only possible with el. conne | ection Bir | | | | | | | |
| Performance | | | | | | | | |
| Accuracy ⁴ | | IEC 60770: ≤ ± | 0.1 % FSO | | | | | |
| performance after turn-do | | | | | | | | |
| - TD ≤ 1:5 | | no change of a | ccuracy 5 | | | | | |
| - TD > 1:5 | | 0 | , | ving formula | (for nominal p | ressure ranges ≤ (| 0.40 bar see | note 5): |
| | | $\leq \pm [0.1 + 0.015]$ | | | | 0 | | |
| | | with turn-down | = nominal pr | essure range | e / adjusted rai | nge | | |
| | | e.g. with a turn- | | | | | | |
| | | $\leq \pm (0.1 + 0.015)$ | | | | | | |
| Permissible load | | | | | | age 3-wire: R _{min} = | 10 kΩ | |
| Influence effects | | | 5 % FSO / 1 | | load: 0. | .05 % FSO / kΩ | | |
| Long term stability | | $\leq \pm (0.1 \text{ x turn-c})$ | iown) % FSC |) / year | | | | |
| Response time | | < 5 msec | following | romotors = - | nible (interfer | o / ooffware rece | 6). | |
| Adjustability | | - electronic dar - offset: 0 90 - turn down of s | nping: 0 1 9 % FSO | 00 sec | sidie (interfac | e / software nece | ssary): | |
| ⁴ accuracy according to IEC | 60770 - | | | | reneatability) | | | |
| ⁵ except nominal pressure ra | nges ≤ 0 | .40 bar; for these | calculation of | accuracy is as | follows: | | | |
| $\leq \pm (0.1 + 0.02 \text{ x turn-down})$ |) % FSO | e.g. turn-down of | 1:3: ≤ ± (0.1 + | 0.02 x 3) % F | SO i.e. accuraci | $y 13 \ge \pm 0.10 \% F30$ | | |
| ≤ ± (0.1 + 0.02 x turn-down) ⁶ software, interface, and cab |) % FSO ble have t | to be ordered sep | arately (softwa | 0.02 x 3) % F re appropriate | SO i.e. accuraci | y IS ≤ ± 0.16 % PSO 5, 98, 2000, NT Vers | sion 4.0 or high | er, and XP) |
| $\leq \pm$ (0.1 + 0.02 x turn-down) ⁶ software, interface, and cab Thermal effects ⁷ (Offse |) % FSO ble have t i t and S | to be ordered sepa (pan) / Permiss | arately (softwa ible temper a | 0.02 x 3) % F re appropriate atures | SO i.e. accuracy for Windows [®] 9 | 5, 98, 2000, NT Vers | sion 4.0 or high | er, and XP) |
| $e^{4} \pm (0.1 + 0.02 \times turn-down)$ e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% |) % FSO ble have a t and S FSO] | to be ordered sepa (pan) / Permiss ≤ ± (0.35 x turn | arately (softwa ible tempera -down) | 0.02 x 3) % F are appropriate atures in compens | SO i.e. accuracy for Windows [®] 9 ated range | 5, 98, 2000, NT Vers -20 80 °C | sion 4.0 or high | er, and XP) |
| $\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / |) % FSO ble have a tt and S FSO] 10 K] | to be ordered separation (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn) | arately (softwa ible tempera -down) | 0.02 x 3) % F are appropriate atures in compens in compens | SO i.e. accuracj for Windows [®] 9. ated range ated range | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C | sion 4.0 or high | ner, and XP) |
| $\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / |) % FSO ble have a tt and S FSO] 10 K] | to be ordered separation be ordered separation be ordered separation by the separation between the separation bet | arately (softwa i ble tempera -down) n-down) | 0.02 x 3) % F re appropriate atures in compens -40 12 -10 12 | SO i.e. accuracy for Windows [®] 9 ated range 5 °C for filling 5 °C for filling | 5, 98, 2000, NT Vers -20 80 °C | | er, and XP) |
| $\leq \pm (0.1 + 0.02 \times turn-down)$ $\frac{6}{5}$ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / |) % FSO ble have a tt and S FSO] 10 K] | to be ordered separate to be ordered separat | arately (softwa i ble tempera -down) n-down) | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 | SO i.e. accuracy for Windows [®] 9 atted range atted range 5 °C for filling 5 °C for filling 5 °C for filling | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil | | er, and XP) |
| [≤] ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures |) % FSO ble have a tt and S FSO] 10 K] S | to be ordered separation be ordered separation be ordered separation by the separation between the separation bet | arately (softwa ible tempera -down) n-down) vironment: | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 | SO i.e. accuracy for Windows [®] 9 lated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C or filling 1 5 °C or filling 1 | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati | ble oil | er, and XP) |
| ⁶ software, interface, and cat ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature |) % FSO ble have a tt and S FSO] 10 K] s ⁸ | to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico | arately (softwa ible tempera -down) n-down) vironment: on oil over | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 | SO i.e. accuracy for Windows [®] 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C 0 °C 300 °C | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 | ble oil 150 °C ⁹ | er, and XP) |
| ⁶ software, interface, and cat ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature medium for cooling element 300°C |) % FSO ble have t t and S FSO] 10 K] s ⁸ | to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid food | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu | SO i.e. accuracy for Windows [®] 9 ated range ated range 5 °C for filling 5 °C for filling 5 °C for filling 5 °C 0 °C 300 °C re: -10 250 | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 °C vacuum: -10 | ble oil 150 °C ⁹ 150 °C ⁹ | er, and XP) |
| <pre>≤ ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures medium for cooling element 300°C ⁷ an optional cooling element</pre> |) % FSO ble have t t and S FSO] 10 K] s ⁸ | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| $\leq \pm (0.1 + 0.02 \times turn-down)$, $software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperature medium for cooling element 300°C 7 an optional cooling element 8 max. temperature of the me 9 also for Pabs \leq 1 bar$ |) % FSO ble have t t and S FSO] 10 K] s ⁸ | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| $\leq \pm (0.1 + 0.02 \times turn-down)$, software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissi |) % FSO ble have t t and S FSO] 10 K] s ⁸ | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid food uence thermal effet | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cts for offset a | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| <pre>≤ ± (0.1 + 0.02 × turn-down, [§] software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P_{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection</pre> |) % FSO ble have to have the have to | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| <pre>≤ ± (0.1 + 0.02 × turn-down, [§] software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P_{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protection</pre> |) % FSO ble have to have the have to | to be ordered sept to be ordered sept to an ordered sept $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| $\leq \pm (0.1 + 0.02 \times turn-down)$, software, interface, and catal Thermal effects 7 (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissi |) % FSO ble have to have the have to | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| $\leq \pm (0.1 + 0.02 \times turn-down)$, e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Per |) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe dium for bility | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ medium: electronics / ensitivation filling fluid silicon filling fluid silicon filling fluid silicon filling fluid silicon filling fluid food uence thermal effer r nominal pressure permanent no damage, bu | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible o cots for offset a gauge > 0 ba t also no fun | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C 300 °C 300 °C re: -10 250 ding on installa | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| [≤] ± (0.1 + 0.02 x turn-down, ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperature medium for cooling element 300°C ⁷ an optional cooling element ⁸ max. temperature of the me |) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ electronics / en- storage: filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent no damage, bu emission and ir silicon oil food compatible | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillii | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| $\leq \pm (0.1 + 0.02 \times turn-down)$, e^{6} software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Per |) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility | to be ordered sept to be ordered sept (pan) / Permiss $\leq \pm (0.35 \times turn)$ $\leq \pm (0.035 \times turn)$ $\leq \pm (0.035 \times turn)$ electronics / en- storage: filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer r nominal pressure permanent no damage, bu emission and ir silicon oil food compatible | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco e oil with FD/ 32; Categor | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| 6 ± (0.1 + 0.02 x turn-down, 6 software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element 8 max. temperature of the me 9 also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protectic Electromagnetic compatil Filling fluids Standard Options |) % FSO ble have to t and S FSO] 10 K] 5 ⁸ t can influe edium for bility | to be ordered sept (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer nominal pressure permanent no damage, bu emission and ir silicon oil food compatible (Mobil DTE FM | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of costs for offset a gauge > 0 ba t also no fun nmunity acco e oil with FD/ 32; Categor | 0.02 x 3) % F re appropriate atures in compens in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu and span depent r: 150 °C for 60 ction ording to EN | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C for filling 1 5 °C m 300 °C re: -10 250 nding on installa 0 minutes with a | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental | ble oil 150 °C ⁹ 150 °C ⁹ na conditions. | |
| ⁶ software, interface, and cat Thermal effects ⁷ (Offse Tolerance band [% TC, average [% FSO / Permissible temperatures Permissible temperatures Permissible temperatures ⁷ an optional cooling element ⁸ max. temperature of the me ⁹ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection Reverse polarity protectic Electromagnetic compatil Filling fluids Standard |) % FSO ble have to have the have to | to be ordered sept (pan) / Permiss ≤ ± (0.35 x turn ≤ ± (0.035 x turn medium: electronics / en storage: filling fluid silico filling fluid silico filling fluid silico filling fluid food uence thermal effer nominal pressure permanent no damage, bu emission and ir silicon oil food compatible (Mobil DTE FM | arately (softwa ible tempera -down) n-down) vironment: on oil over compatible of compatible of compa | 0.02 x 3) % F re appropriate atures in compens -40 12 -10 12 -25 8 -40 10 pressure: -40 biloverpressu r: 150 °C for 60 ction ording to EN A approval y Code: H1; 00 Hz); oth | SO i.e. accuracy for Windows® 9 ated range ated range 5 °C for filling 1 5 °C for filling 1 5 °C or fi | 5, 98, 2000, NT Vers -20 80 °C -20 80 °C fluid silicon oil fluid food compati vacuum: -40 . °C vacuum: -10 tion position and fillin max. environmental | ble oil 150 °C ⁹ 150 °C ⁹ ng conditions. temperature o | f 50 °C |

| Materials | | | | | | | |
|--|---------------|------------------------------------|---|--------------------------|--------------------------------------|--------------------|--|
| Pressure port | | tainloss stool | 1.4404 (316 L) | | | others on re | auost |
| Housing | | | 1.4404 (316 L) | | | others office | quesi |
| U | | | . , | aland brace nie | kal platad | othoro on ro | aucot |
| Option compact field housi | | | 1.4305 (303), cable | | | others on re | |
| Seals (O-ring) | 0 | tandard: ption: lamp and dai | FFKM (r others on | ecommended for | r medium tempera r medium tempera | | |
| Diaphragm | | | nless steel 1.4435 (3 | 16L) option: Has | tellov [®] C-276 (2.4 | 819) and Tant | alum on request |
| Media wetted parts | | ressure port. | | | 10110 (2.1 | oroj ana ran | alam on roquoot |
| | | | 1 0 | | | | |
| Explosion protection (on | | | | | | | |
| Approval DX19-DMP 331P | z | | IG Ex ia IIC T4 Ga | | | iaD 20 T 85 ° | С |
| Safety technical max. value | es h | ave an inner | 93 mA, P _i = 660 mW capacity of max. 27 | | | onnections | |
| Max. permissible temperat | | 20 65 °C | | | | | |
| Connecting cables | C | able capacita | nce: signal line/shie | eld also signal lin | e/signal line: 160 | pF/m | |
| (by factory) | C | able inductar | nce:signal line/shield | also signal line/s | signal line: 1 µH/m | 1 | |
| Miscellaneous | | | | | | | |
| Current consumption | | gnal output c gnal output v | | | | | |
| W/aight | | | onage. max. / n | | | | |
| Weight | a | pprox. 200 g | | | | | |
| Installation position | | | | | | | |
| Operational life | | | essure cycles | | | | |
| CE-conformity | | | : 2004/108/EC | | | | |
| ¹⁰ Pressure transmitters are ca | librated in a | a vertical positi | on with the pressure co | nnection down. If th | nis position is change | ed on installation | there can be sligh |
| deviations in the zero point for | pressure ra | anges P _N ≤1 ba | ar. | | | | |
| Wiring diagrams | | | | | | | |
| | | | | O uning ourstand | (valtera) | | |
| 2-wire-system (current) | | | | 3-wire-system | · · · · | | |
| p supply + | v | > + /s > - | | U signal + | | | |
| Pin configuration | | | | 1 | | | |
| Electrical connections | | ISO 4400 | Binder 723 (5-pin) | Binder 723 (7-pin) | M12x1/ metal (4-pin) | field housing | cable colours (DIN 47100) |
| Su | pply + | 1 | 3 | 3 | 3 | IN + | wh (white) |
| | pply – | 2 | 4 | 1 | 1 | IN – | bn (brown) |
| Signal + (only for 3 | | 3 | 1 | 6 | - | OUT + | gr (green) |
| | | | - | _ | | | ye/gn |
| | shield | ground pin | 5 | 2 | 4 | 1 | yellow / green |
| Communication | RxD | | | 4 | | | , <u>.</u> |
| interface ¹¹ | TxD | - | | 5 | | - | |
| | GND | - | | 7 | | - | |
| 44 | | - | - | | - | - | - |
| ¹¹ may not be connected direct | | | e adapter is available a | s accessory) | | | |
| Electrical connections (c | limensior | ns in mm) | | | | | |
| etereleral 1 | | | | | | | |
| standard optic | n | | | | | | |
| | | | | | | | |
| L L L L L L L L L L L L L L L L L L L | + | + | | 44 | | .3 | Ø7,4 |
| | | | | 0 49,5 | | 15 | |
| | | † , | _\/' ! ⊨ | | |] ᠯ | |
| | [] [] | | | A A | 0.5 | | 1 |
| 5) 01 - Ø34,5 - Ø34,5 - | 10.5 | — Ø34,5 — 🗕 📍 | ø34,5 | | ¥ 🔛 | 0,5 | |
| Autoritation and Autoritation and Autoritation | | | | | ø35 • | | l ⊲ —_Ø35 ► |
| | | | | (for o | to 8 mm) |) | |
| ISO 4400 Binder 7 (IP 65) 5-pin (IP | | inder 723 oin (IP 67) | M12x1 4-pin (IP 67) | field housing (IP 67) | cable outle PVC cable (I | | ble outlet ¹³ , with ation tube (IP 68 |
| | | | | | | | |
| ¹² standard: 2 m PVC cable (w | ithout vent | ilation tube, pe | rmissible temperature: - | -5 70 °C) | | | |

¹² standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)
¹³ different cable types and lengths available, permissible temperature depends on kind of cable

DMP 331Pi Technical Data



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DMP 331Pi Ordering Code

| DMP 331Pi | | | · C |]- []- | | |
|---|--|----------------|----------------|----------------|-------------------|--------------------|
| Pressure gauge | 5 0 0 | | | | | |
| absolute ¹ | 5 0 0 5 0 1 | | | | | |
| Input [bar] 0.40 ¹ | 4 0 0 0 | | | | | |
| 1.0 2.0 | 1 0 0 1 2 0 0 1 | | | | | |
| 4.0 | 4 0 0 1 | | | | | |
| 10 20 | 1 0 0 2 2 0 0 2 | | | | | |
| 40 | 4 0 0 2 | | | | | |
| -0.40 0.40 | 9100 | | | | | |
| -1 1 -1 2 | S 1 0 2 S 1 0 2 V 2 0 2 V 4 0 2 V 1 0 3 9 9 9 9 | | | | | |
| -1 4 | V 4 0 2 | | | | | |
| -1 10 customer | 9999 | | | | | consult |
| Output | | | | | | |
| 4 … 20 mA / 2-wire Intrinsic safety 4 … 20 mA / 2-wire | 1 E | | | | | |
| 0 10 V / 3-wire | 3 | 3 | | | | |
| Accuracy | g | 9 | | | | consult |
| 0.1% | | 1 | | | | |
| customer Electrical connection | | 9 | | | | consult |
| Male and female plug ISO 4400 | | 1 0 0 | | | | |
| Male plug Binder series 723 (5-pin) Male plug Binder series 723 (7-pin) ² | | 2 0 0 | | | | |
| Cable outlet with PVC-cable ³ | | A 0 0 T A 0 | | | | |
| Cable outlet ⁴ | | T R 0 | | | | |
| Male plug M12x1 (4-pin) / metal Compact field housing | | M 1 0 | | | | |
| stainless steel 1.4305 5 | | 8 5 0 | | | | |
| Customer Mechanical connection | | 999 | | | | consult |
| G1/2" with flush | | | Z 0 0 | | | |
| welded diaphragm (DIN 3852) ⁶ G1" with flush | | | | | | |
| welded diaphragm (DIN 3852) | | | Z 3 1 | | | |
| Clamp DN 25 (DIN 32676) Clamp DN 32 (DIN 32676) | | | C 6 1 C 6 2 | | | |
| Clamp DN 50 (DIN 32676) | | | C 6 3 | | | |
| Dairy pipe DN 25 (DIN 11851) ⁵ Dairy pipe DN 40 (DIN 11851) ⁵ | | | M 7 3 M 7 5 | | | |
| Dairy pipe DN 50 (DIN 11851) ⁵ | | | M 7 6 | | | |
| Diaphragm | | _ | 999 | | | consult |
| Stainless steel 1.4435 (316L) | | | 1 | | | |
| Hastelloy [®] C-276 (2.4819) Tantalum | | | H | | | consult consult |
| customer | | | 9 | | | consult |
| Seals | | | | | | |
| for clamp or dairy pipe: without for inch thread - standard: FKM | | | 0 | | | |
| for inch thread - option: FFKM | | | 7 | | | |
| Filling Fluids | | | 9 | | | consult |
| silicon oil | | | | 1 | | |
| food compatible oil customer | | | | 2 9 | | consult |
| Special version | | | | | | oonouit |
| standard RS-232 interface ⁷ | | | | 1 1 | 1 1 | |
| with cooling element up to 300 °C | | | | 2 | 1 1 2 1 1 1 | |
| RS-232 interface and cooling element up to 300 °C ⁷ | | | | 2 | | |
| cooling element up to 300°C customer | | | | | 99 | consult |
| | | | | | | |

¹ absolut pressure possible from 1 bar

 $^{\rm 2}$ cable socket is included in delivery

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), others on request
 ⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
 ⁵ The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe.

The cup nut has to be ordered as separate position.

⁶ possible only for $P_N \ge 1$ bar

⁷ RS-232 interface only possible with el. connection Binder series 723 (7-pin)

Software, Interface and cable for DMP 331 Pi with option RS-232 have to be order separately

(Ordering code: CIS-G; Software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP)

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PRECISION PRESSURE TRANSMITTER



DMP 331i / DMP331i LMP 331 i

Precision Pressure Transmitter / Screw-in transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: 0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signal

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Product characteristics

- thermal error in compensated range -20 ... 80 °C: 0.2 % FSO TC 0.02 % FSO / 10K
- communication interface for adjusting of offset, span and damping

Optional versions

- IS-versions
 Ex ia = intrinsically safe for gases and dusts
- adjustment of nominal pressure gauges (factory-provided)

The precision pressure transmitter DMP 331i and DMP 333i also the precision screw-in transmitter LMP 331i demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit analog digital converter. Consequently it is possible to conduct an active compensation and the transmitters with excellent maesurements and exeptionally attractive price to offer on the market.

Preferred areas of use are DMP 331i / DMP 333i



Laboratory Techniques

Energy production (gas consumption and thermal energy measurement)

Preferred areas of use are LMP 331i



Chemical / petrochemical industry



Environmental Engineering (water / sewage / recycling)



DMP 331i / DMP 333i / LMP 331i

Technical Data

| | 2 331 i | | | | | | | |
|--|--|--|--|---|--|--|--|-------------|
| Pressure ranges DMF Nominal pressure | | | | - | | | | |
| gauge / absolute | [bar] | 0.4 | 1 | 2 | 4 | 10 | 20 | 40 |
| Overpressure | [bar] | 2 | 5 | 10 | 20 | 40 | 80 | 105 |
| Burst pressure | [bar] | [bar] 3 7,5 15 25 t the device within the turn-down-possibility by software on the requi | | | | 50 | 120 | 210 |
| | adjust the dev | ice within the tu | 1 | ility by software o | on the required pr | essure range. | | |
| | | | | | | | | |
| Vacuum ranges | | | | | | | | |
| Nominal pressure | [bar] | -0.4 0 | .4 | -1 1 | -1 2 | -1. | 4 | -1 10 |
| Overpressure | [bar] | 2 | | 5 | 10 | | 0 | 40 |
| Burst pressure | [bar] | 3 | | 7.5 | 15 | 2 | 5 | 50 |
| DDM | 2 2 2 2 2 1 | | | | | | | |
| Pressure ranges DMF | 2 3 3 3 1 | | | | | | | |
| Nominal pressure gauge / absolute | [bar] | 60 | | 100 | 200 | 40 | 00 | 600 |
| Overpressure | [bar] | 210 | | 210 | 600 | 10 | 00 | 1000 |
| Burst pressure | [bar] | 420 | | 420 | 1000 | - | 50 | 1250 |
| ¹ On customer request we | | - | rn-down-possib | - | | | | |
| | | | | | | <u> </u> | | |
| Pressure ranges LMP | 9 331 i ¹ | | | | | | | |
| Nominal pressure | | 0.4 | 1 | 2 | 4 | 10 | 20 | 40 |
| gauge / absolute | [bar] | | | | | - | | |
| Level gauge | [mH ₂ O] | 4 | 10 | 20 | 40 | 100 | 200 | 400 |
| Overpressure | | | 5 | 10 | 20 | 40 | 80 | 105 |
| Burst pressure | [bar] | 3 | 7.5 | 15 | 25 | 80 | 120 | 210 |
| ¹ On customer request we | adjust the dev | ce within the tu | rn-down-possib | ility by software o | on the required pr | essure range. | | |
| | | | | | | | | |
| Output signal / Suppl | У | | | | | | | |
| Standard | | | | V _s = 12 36 V | | | | |
| Option IS-protection | | | | V _S = 14 28 V | | | | |
| Options | | | | | | | | |
| | | | | V _s = 14 36 M mmunication in | | | | |
| ² only possible with el. cor | nection Binder | | | minumeation | licitace | | | |
| Performance | inection binder | 3enes 725 (7-p | //// | | | | | |
| | | | :≤±0.1 % FS | · O | | | | |
| Accuracy | | IEC 60770 . | > + U % F. | | | | | |
| | al a com | | . = 1 0.1 /01 0 | | | | | |
| performance after turn | -down | no chango o | | | | | | |
| - TD ≤ 1:5 | -down | no change o | of accuracy ⁴ | | for nominal pro | | < 0.40 bor oo | no poto 2); |
| | -down | for calculation | of accuracy ⁴ on use the follo | owing formula (| (for nominal pre | essure ranges | ≤ 0.40 bar se | ee note 3): |
| - TD ≤ 1:5 | -down | for calculation $\leq \pm [0.1 + 0.0]$ | of accuracy ⁴ on use the follo 015 x turn-dov | owing formula (vn] % FSO | | U | ≤ 0.40 bar se | e note 3): |
| - TD ≤ 1:5 | -down | for calculation $\leq \pm [0.1 + 0.0]$ with turn-down | of accuracy ⁴ on use the follo 015 x turn-dov wn = nominal | owing formula (vn] % FSO pressure range | / adjusted ran | ge | ≤ 0.40 bar se | e note 3): |
| - TD ≤ 1:5 | -down | for calculations $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a turn- | of accuracy ⁴ on use the follo 015 x turn-dow wn = nominal urn-down of 1: | owing formula (vn] % FSO pressure range 10 following ac | / adjusted ran curacy is calcu | ge llated: | ≤ 0.40 bar se | e note 3): |
| - TD ≤ 1:5 - TD > 1:5 | -down | for calculations $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a tung $\leq \pm (0.1 + 0.0]$ | of accuracy ⁴ on use the folk 015 x turn-dov wn = nominal urn-down of 1: 015 x 10) % F | owing formula (vn] % FSO pressure range 10 following ac SO i.e. accura | e / adjusted ran curacy is calcu acy is ≤ ± 0.25 ° | ge ilated: % FSO | | e note 3): |
| - TD ≤ 1:5 - TD > 1:5 Permissible load | -down | for calculation $\leq \pm [0.1 + 0.0]$ with turn-down e.g. with a tung $\leq \pm (0.1 + 0.0]$ current 2-with | of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F e: $R_{max} = [(V$ | twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $_{\rm S} - V_{\rm S}$ min) / 0. | / adjusted ran curacy is calcu | ge Ilated: % FSO age 3-wire: F | | e note 3): |
| - TD ≤ 1:5 - TD > 1:5 Permissible load Influence effects | -down | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) | of accuracy ⁴ on use the folk 015 x turn-dov wn = nominal urn-down of 1: 015 x 10) % F | twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min) / 0.$ 10 V | e / adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt | ge Ilated: % FSO age 3-wire: F | R _{min} = 10 kΩ | e note 3): |
| TD ≤ 1:5 TD > 1:5 Permissible load Influence effects Long term stability | -down | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: () $\leq \pm (0.1 \times tur)$ approx. 5 ms | of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 \% FSO /rn-down) % FSsec$ | twing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $_{\rm S}$ – V _S min) / 0. 10 V SO / year | adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt loa | ge Ilated: % FSO age 3-wire: F Id: 0.05 % | R _{min} = 10 kΩ FSO / kΩ | e note 3): |
| - TD ≤ 1:5 | -down | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration | of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 \% FSO /rn-down) \% FSsecn of following p$ | by by the second secon | e / adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt | ge Ilated: % FSO age 3-wire: F Id: 0.05 % | R _{min} = 10 kΩ FSO / kΩ | e note 3): |
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| TD ≤ 1:5 TD > 1:5 Permissible load Influence effects Long term stability Response time | -down | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic - offset: 0 | f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F e: $R_{max} = [(V0.05 \% FSO /n-down) \% FSsecof following pdamping: 090 % FSO$ | by by by the second se | adjusted ran curacy is calcu acy is ≤ \pm 0.25 $^{\circ}$ 02 A] Ω volt loa | ge Ilated: % FSO age 3-wire: F Id: 0.05 % | R _{min} = 10 kΩ FSO / kΩ | e note 3): |
| TD ≤ 1:5 TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability | | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic - offset: 0 - turn down | f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F e: $R_{max} = [(V0.05 % FSO /n-down) % FSsecan of following pdamping: 090 % FSOof span: max.$ | by b | e / adjusted ran ccuracy is calcu acy is ≤ ± 0.25 ⁽ 02 A] Ω volt loa | ge Ilated: % FSO age 3-wire: F Id: 0.05 % | R _{min} = 10 kΩ FSO / kΩ | e note 3): |
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| - TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE except nominal pressure $\leq \pm (0.1 + 0.02 \times turn-doi 5 software, interface, and of Thermal effects (Offs Tolerance band TC, average [%$ | C 60770 – limit rangeş ≤ 0 .40 wn) % FSO e.g cable have to b et and Spa n] [% FSO] FSO / 10 K] | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dow e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these of turn-down of 1 e ordered separation / Permissible $\leq \pm (0.2 \times tur)$ in compensation $\pm (0.02 \times tur)$ | of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.ent (non-linearlyalculation of ac:3' ≤ ± (0.1 + 0.rately (softwarele temperaturrn-down)ated rangen-down)$ | by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year ranaters pos 100 sec 1:10 $ranaters pos 1:00 sec 1:10 (ranater) resres-20 80 °C$ | e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volti- loa ssible (interface eatability) ws: e. accuracy is \leq Vindows [®] 95, 98, C | ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne | $R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵): | · |
| - TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE except nominal pressure $\leq \pm (0.1 + 0.02 \times turn-doi 5 software, interface, and of Thermal effects (Offs Tolerance band TC, average [%$ | C 60770 – limit rangeş ≤ 0 .40 wn) % FSO e.g cable have to b et and Spa n] [% FSO] FSO / 10 K] | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these bar; for these b | f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.et (non-linearitycalculation of action 4.0.cately (softwarethe temperaturem-down)ated range$ | by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year ranateters pos 100 sec 1:10 $ranateters pos 100 sec 1:10 ranateters pos 1:10 1$ | e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volt- loa solution (interface eatability) ws: e. accuracy is \leq Vindows [®] 95, 98, C | ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne | $R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵): | · |
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| - TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE d_{except} nominal pressure $\leq \pm (0.1 + 0.02 \times turn-dou 5 software, interface, and off Thermal effects (Offs Tolerance band TC, average [% Permissible temperatu$ | C 60770 – limit rangeş ≤ 0 .40 wn) % FSO e.g cable have to b et and Spa n] [% FSO] FSO / 10 K] | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these bar; for these b | f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.et (non-linearitycalculation of action 4.0.cately (softwarethe temperaturem-down)ated range$ | by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year ranateters pos 100 sec 1:10 $ranateters pos 100 sec 1:10 ranateters pos 1:10 1$ | e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volt- loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C | ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne | $R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵): | |
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| - TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability accuracy according to IE $\leq \pm (0.1 + 0.02 \times turn-doi software, interface, and of Thermal effects (Offs Tolerance band TC, average [% Permissible temperatu Electrical protection Short-circuit protection Reverse polarity protect$ | C 60770 – limit orangeş ≤ 0.40 wn) % FSO e.g cable have to b et and Span] [% FSO] FSO / 10 K] res | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wir supply: (1) $\leq \pm (0.1 \times tur$ approx. 5 ms configuration - electronic - offset: 0 - turn down point adjustme bar; for these bar; for these bar; for these bar; for these turn-down of 1 e ordered sepan / Permissibl $\leq \pm (0.2 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa medium: electronics / storage: permanent | f accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.90 % FSOof span: max.et (non-linearitycalculation of action 4.0.cately (softwarethe temperaturem-down)ated range$ | by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year barameters pos 100 sec 1:10 (, hysteresis, repective () 2x 3) % FSO i appropriate for V res -20 80 °C -25 125 °C -25 85 °C -40 100 °C | e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25$ (02 A] Ω volt- loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C | ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne | $R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵): | |
| - TD \leq 1:5 - TD > 1:5 Permissible load Influence effects Long term stability Response time Adjustability ³ accuracy according to IE ⁴ except nominal pressure $\leq \pm (0.1 + 0.02 \times turn-doi 5 software, interface, and of Thermal effects (Offs Tolerance band$ | C 60770 – limit orangeş ≤ 0.40 wn) % FSO e.g cable have to b et and Span] [% FSO] FSO / 10 K] res | for calculatic $\leq \pm [0.1 + 0.0]$ with turn-dov e.g. with a tu $\leq \pm (0.1 + 0.0]$ current 2-wirr supply: (0) $\leq \pm (0.1 \times tur)$ approx. 5 ms configuration - electronic (1) - offset: 0 - turn down point adjustme bar; for these of turn-down of 1 e ordered sepan / Permissibl $\leq \pm (0.2 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa $\pm (0.02 \times tur)$ in compensa medium: electronics / storage: permanent no damage, | of accuracy ⁴ on use the folk 015 x turn-dow wn = nominal urn-down of 1: 015 x 10) % F re: $R_{max} = [(V0.05 % FSO /m-down) % FSOof span: max.of following pdamping: 090 % FSOof span: max.of water of acc1:3: \leq \pm (0.1 + 0.rately (softwarele temperaturrn-down)ated rangen-down)ated rangeenvironment:$ | by wing formula (vn] % FSO pressure range 10 following ac SO i.e. accura $s - V_s min$) / 0. 10 V SO / year barameters pos 100 sec 1:10 (, hysteresis, repective () 2x 3) % FSO i appropriate for V res -20 80 °C -25 125 °C -25 85 °C -40 100 °C | e / adjusted ran couracy is calcu- acy is $\leq \pm 0.25^{\circ}$ $02 \text{ A}] \Omega$ volt loa sible (interface eatability) ws: e. accuracy is $\leq \pm$ Vindows [®] 95, 98, C C C C | ge Ilated: % FSO age 3-wire: F Id: 0.05 % 2 / software ne | $R_{min} = 10 \text{ k}\Omega$ FSO / k Ω ccessary ⁵): | |

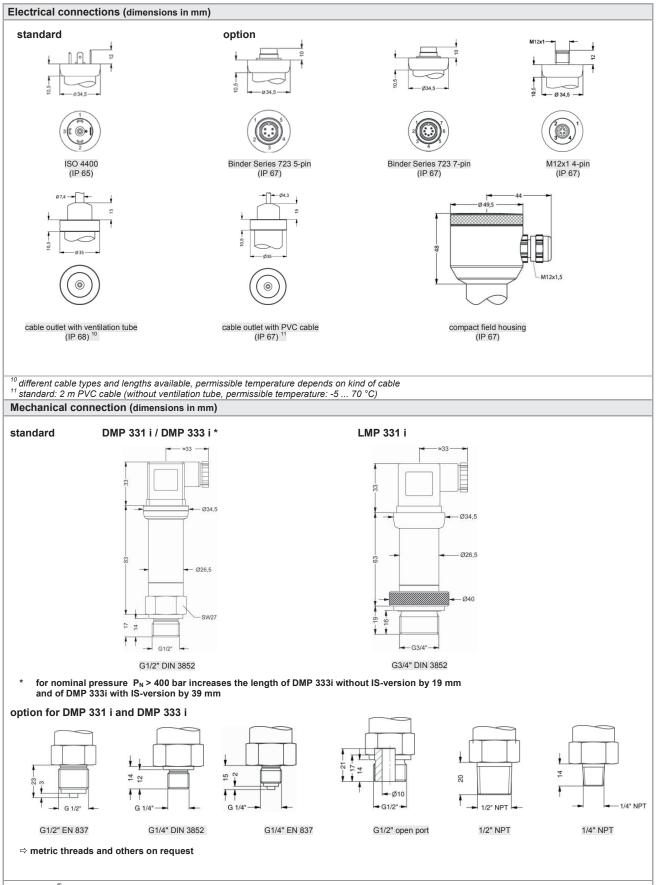
| Materials | |
|---|--|
| Pressure port | stainless steel 1.4404 (316 L) |
| Housing | stainless steel 1.4404 (316 L) |
| Seals | DMP 331i / LMP 331i: FKM DMP 333i: NBR |
| | optional: welded version ⁶ |
| Diaphragm | stainless steel 1.4435 (316L) |
| Media wetted parts | pressure port, seals, diaphragm |
| | s according to EN 837; welded version not available with pressure ranges \leq 0.16 bar and > 40 bar |
| Mechanical stability | |
| Vibration | 10 g RMS (20 2000 Hz) |
| Shock | 100 g / 11 msec. |
| Explosion protection (only for 4 | |
| Approvals DX19-DMP 331i | IBEXU 10 ATEX 1068 X / IECEX IBE 12.0027X |
| DX19-DMP 333i | zone 0: II 1G Ex ia IIC T4 Ga |
| DX19-LMP 331i | zone 20: II 1D Ex ia IIIC T 85°C Da |
| | $U_i = 28 \text{ V}, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i \approx 0 \text{ nF}, L_i \approx 0 \mu\text{H},$ |
| Safety technical max. values | the supply connections have an inner capacity of max. 27 nF to the housing |
| Permissible temperatures for | in zone 0: -20 60 °C with p _{atm} 0.8 bar up to 1.1 bar |
| environment | in zone 1 or higher: -20 65 °C |
| Connecting cables | cable capacitance: signal line/shield also signal line/signal line: 160 pF/m |
| (by factory) | cable inductance:signal line/shield also signal line/signal line: 1µH/m |
| Miscellaneous | |
| Current consumption | signal output current: max. 25 mA signal output voltage: max. 7 mA |
| Weight | approx. 200 g |
| Installation position | any ⁷ |
| Operational life | > 100 x 10 ⁶ pressure cycles |
| CE-conformity | EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) ⁸ |
| ATEX Directive | 94/4/EG |
| deviations in the zero point for pressure | a vertical position with the pressure connection down. If this position is changed on installation there can be slight e ranges $P_N \le 1$ bar. with maximum permissible overpressure > 200 bar |
| Wiring diagrams | |
| 2-wire-system (current) | 3-wire-system (voltage) |
| | + |
| Pin configuration | |

| Electrical connections | s | ISO 4400 | Binder 723 (5-pin) | Binder 723 (7-pin) | M12x1/ metal (4-pin) | field housing | cable colours (DIN 47100) |
|-------------------------------------|---------------------|--------------------|------------------------|-----------------------|-------------------------|---------------|------------------------------|
| | Supply + | 1 | 3 | 3 | 3 | IN + | wh (white) |
| | Supply – | 2 | 4 | 1 | 1 | IN – | bn (brown) |
| Signal + (on | ly for 3-wire) | 3 | 1 | 6 | - | OUT + | gn (green) |
| | shield | ground pin | 5 | 2 | 4 | | ye/gn (yellow / green) |
| Communication | RxD | - | - | 4 | - | - | - |
| interface ⁹ | TxD | - | - | 5 | - | - | - |
| | GND | - | - | 7 | - | - | - |
| ⁹ may not be transmitted | I directly with the | PC (the suitable a | danter is available as | s accessory) | | | |

⁹ may not be transmitted directly with the PC (the suitable adapter is available as accessory)

DMP 331i / DMP 333i / LMP 331i

Technical Data



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| DMP 331i/ DMP 33 | 33i/ LMP 331i | П | | - | | | <u></u> . | - 🗌 | - | |]-[| | | - |]-[| | | |
|---|--|---|------------|------------|-----|--------|-----------|-----|---|-----|-----|-------------------|---|---|-----|-------------|---|---------|
| Pressure | | | | | | | | | | | | | | | | | | |
| For DMP 331i | | | | | | | | | | | | | | | | | | |
| | gauge | | 1 0 | | | | | | | | | | | | | | | |
| For DMP 333i | absolute | 1 | 1 1 | | | | | | | | | | | | | | | |
| FOI DWP 3331 | gauge 1 | 1 | 3 0 | | | | | | | | | | | | | | | |
| | absolute | 1 | 3 1 | | | | | | | | | | | | | | | |
| For LMP 331i | | | | | | | | | | | | | | | | | | |
| | in bar | 4 | 3 0 3 1 | | | | | | | | | | | | | | | |
| | in mH ₂ O | 4 | 3 1 | _ | | _ | _ | _ | | | | | | | | | | |
| Input | [mH ₂ O] [bar] | | | | | | | | | | | | | | | | | |
| For DMP 3311 ² or LMP 3311 | 4 0.40 | | | 4 0 | 0 | 0 | | | | | | | | | | | | |
| | 10 1.0 | | | 1 0 | 0 | 1 | | | | | | | | | | | | |
| | 20 2.0 | | | | | 1 | | | | | | | | | | | | |
| | 40 4.0 | | | 4 0 | 0 (| 1 | | | | | | | | | | | | |
| | 100 10 | | | 1 0 | 0 0 | 2 | | | | | | | | | | | | |
| | 200 20 | | | 2 0 | 0 0 | 2 | _ | | | | | | | | | | | |
| ? | 400 40 | | | 4 0 | 0 0 | 2 | | | | | | | | | | | | |
| For DMP 333i ² | 60 | | | 6 0 | 0 0 | 2 | | | | | | | | | | | | |
| | 100 | | | 1 0 | | | | | | | | | | | | | | |
| | 200 | | | 2 0 | 0 | 3 3 | | | | | | | | | | | | |
| | 400 | | | 4 0 | 0 (| 3 | | | | | | | | | | | | |
| | 600 | | | 6 0 | 0 0 | 3 | | | | | | | | | | | | |
| For DMP 331i | 0.40 | 2 | | | | 0 | | | | | | | | | | | | |
| | -0.40 0.40 | J | | S 4 | 0 | 0 | | | | | | | | | | | | |
| | -1 1 -1 2 | | | S 1 V 2 | | 2 | | | | | | | | | | | | |
| | -1 2 | | | V 4 | 0 | 2 | | | | | | | | | | | | |
| | -1 10 | | | V 1 | 0 | 3 | | | | | | | | | | | | |
| | customer | | | 9 9 | 9 | 9 | | | | | | | | | | | | consult |
| Output | | | | | | | | | | | | | | | | | | |
| | 4 20 mA / 2-wire | | | | | | 1 | | | | | | | | | | | |
| Intrinsic safe | ty 4 20 mA / 2-wire | | | | | | E | | | | | | | | | | | |
| | 0 10 V / 3-wire customer | | | | | | 3 9 | | | | | | | | | | | consult |
| Accuracy (at nominal pressu | | | | | | | 5 | | | | | | | | | | | Consult |
| | 0.1 % | _ | _ | _ | _ | _ | _ | 1 | _ | | | | | _ | | | | |
| | customer | | | | | | | 9 | | | | | | | | | | consult |
| Electrical connection | | | | | | | | | | | | | | | | | | |
| | female plug ISO 4400 | | | | | | | | 1 | 0 0 | | | | | | | | |
| | der series 723 (5-pin) | | | | | | | | | 0 0 | | | | | | | | |
| | Compact field housing ss steel 1.4404 (316L) | | | | | | | | 8 | 5 0 | | | | | | | | |
| | Male and female plug | | | | | | | | | | | | | | | | | |
| | der series 723 (7-pin) | | | | | | | | A | 0 0 | | | | | | | | |
| | M12x1 (4-pin) / metal | | | | | | | | | 1 0 | | | | | | | | |
| Cable | outlet with PVC cable ³ | | | | | | | | Т | A 0 | | | | | | | | |
| | Cable outlet 4 | | | | | | | | Т | R 0 | | | | | | | | |
| Mochanical connection | customer | | | | | | | | 9 | 99 | | | | | | | | consult |
| Mechanical connection For DMP 331i or DMP 333i | | | | | | | | | | | | | | | | | | |
| | G1/2" DIN 3852 | | | | | | | | | | | 1 0 | 0 | | | | | |
| | G1/2" EN 837 | | | | | | | | | | | 2 0 | 0 | | | | | |
| | G1/4" DIN 3852 | | | | | | | | | | | 3 0 | 0 | | | | | |
| | G1/4" EN 837 | | | | | | | | | | | 4 0 | 0 | | | | | |
| | G1/2" DIN 3852 with 5, | 6 | | | | | | | | | | F 0 | 0 | | | | | |
| C1/2" DIN 201 | flush sensor 52 open pressure port ⁶ | | | | | | | | | | | H 0 N 0 N 4 | | | | | | |
| G 1/2 DIN 30 | 1/2" NPT | | | | | | | | | | | NIO | | | | | | |
| | 1/4" NPT | | | | | | | | | | | N 4 | 0 | | | | | |
| For LMP 331i | | | | | | | | | | | | | | | | | | |
| | 852 with flush sensor | | | | | | | | | | | K 0 9 9 | 0 | | | | | |
| | customer | | | | | | | | | | | 99 | 9 | | | | | consult |
| Seals | | | | | | | | | | | | | | | | | | |
| For DMP 331i or LMP 331i | | | | | | | | | | | | | | | | | | |
| | FKM hout (welded version) ⁷ | | | | | | | | | | | | | 1 | | | | |
| For DMP 333i | | | | | | | | | | | | | | 2 | | | | |
| | NBR | | | | | | | | | | | | | 5 | | | | |
| | customer | | | | | | | | | | | | | 9 | | | | consult |
| | | | | | | | | | | | | | | 5 | | | | |
| Special version | | | | | | | | | | | | | | | | | | |
| Special version | standard | | | | | | | | | | | | | | 1 | 1 | 1 | |
| Special version | | | | | | | | | | | | | | | 1 | 1 2 9 | 1 | consult |

¹ measurement starts with ambient pressure

 2 pressure ranges < 40 bar as DMP 331i; pressure ranges > 40 bar as DMP 333i

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube ⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

⁵ Mechanical connection G1/2" DIN 3852 flush impossible for vacuum ranges ⁶ only possible for DMP 331i

 7 welded version only with pressure ports according to EN 837; not possible with pressure ranges \leq 0.16 bar and > 40 bar

⁸ RS-232 Interface only possible with el. connection Binder serie 723 (7pin) Software, Interface and cable for DMP 331i, DMP 333i and LMP 331i with option RS-232 have to be order separately

(Ordering code: CIS-G; Software appropriate for Windows[®] 95, 98, 2000, NT Version 4.0 or newer and XP)

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INDUSTRIAL PRESSURE TRANSMITTER



DMP 343

Industrial Pressure Transmitter

Without Media Isolation

accuracy according to IEC 60770: 0,35 % FSO

Nominal pressure

from 0 ... 10 mbar up to 0 ... 1000 mbar

Product characteristics

- excellent linearity
- small thermal effect
- excellent long term stability

Optional versions

- IS-version:
 Ex ia = intrinsically safe for gases and dusts
- ► SIL 2 application according to IEC 61508 / IEC 61511
- different electrical and mechanical connections
- customer specific versions

The pressure transmitter DMP 343 has been especially designed for the measurement of very low gauge pressure and for vacuum applications. Permissible media are gases, pressurized air and non-aggressive low viscos oils.

The DMP 343 features excellent thermal behaviour and outstanding long term stability. A variety of standard output signals as well as mechanical and electrical connections make the DMP 343 covering a wide field of applications.

Preferred areas of use are



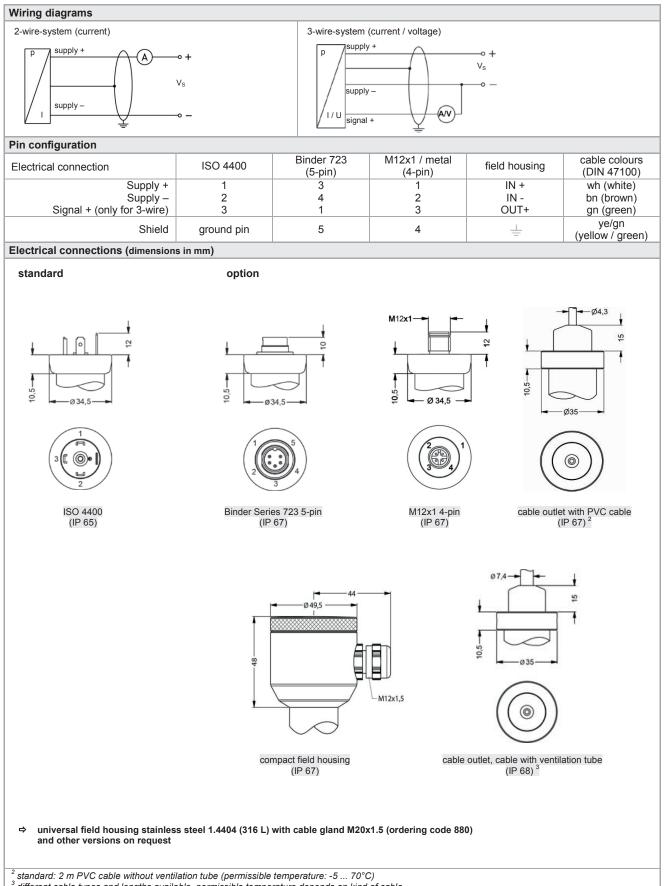
Plant and Machine Engineering

Heating and Air Conditioning

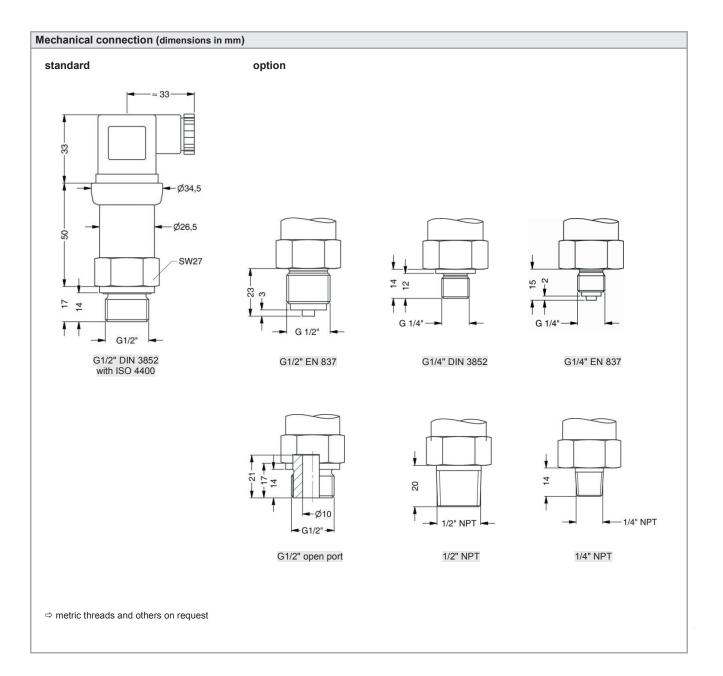


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| Input pressure range | | | | | | | | | | | | |
|--|------------|--|--|-----------------------|---------------------------------------|------------|-----------|-----------|----------|--------|--------|------|
| Nominal pressure gauge | [mbar] | -1000 0 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 | 1000 |
| Overpressure | [har] | 3 0.2 | | 0.2 | 0.5 | 0.5 | 100 | 2 | 3 | 3 | 3 | 3 |
| Burst pressure | [bar] | 5 0.2 | | 0.2 | 0.5 | 0.5 | 1.5 | 3 | 5 | 5 | 5 | 5 |
| | [bai] | 5 0 | 0.5 | 0.5 | 0.75 | 0.75 | 1.5 | 5 | 5 | | 5 | 5 |
| Output signal / Supply | | | | | | | | | | | | |
| Standard | | 2-wire: 4 20 | mA / V | / _s = 8 | 32 V _{DC} | | | | | | | |
| Option IS-protection | | 2-wire: 4 20 | | | | | | | | | | |
| Options 3-wire | | 3-wire: 0 20 | | - | | | | | | | | |
| | | 0 10 | | / _s = 14 | | | | | | | | |
| Performance | | | | | | | | | | | | |
| Accuracy ¹ | | standard: nominal pressure | ≤ 100 mb | | ± 0.35 % ± 0.50 % | | | | | | | |
| Permissible load | | current 3-wire: | Irrent 3-wire: $R_{max} = 500 \Omega$ Itage 3-wire: $R_{min} = 10 k\Omega$ | | | | | | | | | |
| Influence effects | | supply: | | | | | | | | | | |
| Response time | | 2-wire: ≤ 10 mse 3-wire: ≤ 3 msee | wire: ≤ 3 msec | | | | | | | | | |
| ¹ accuracy according to IEC 607 | 770 — limi | t point adjustment (no | on-linearity, | hysteresis | , repeata | ability) | | | | | | |
| Thermal effects (Offset an | | | | | | | | | | | | |
| Nominal pressure P _N | [mbar] | -1000 0 | | ≤ | 100 | | 4 | ≤ 400 | | | > 400 | |
| Tolerance band [9 | % FSO] | ≤±0.75 | | ≤ : | ± 1.5 | | : | ≤±1 | | : | ≤±0.75 | |
| in compensated range | [°C] | -20 85 | | 0. | 50 | | 0 | 70 | | - | 20 85 | 5 |
| Permissible temperatures | | | | | | i | | | | | | |
| Permissible temperatures | | medium: electronics / envir storage: | onment: | -40 | 125 °C 85 °C 100 °C | | | | | | | |
| Electrical protection | | | | | | | | | | | | |
| Short-circuit protection | | permanent | | | | | | | | | | |
| Reverse polarity protection | | no damage, but a | lso no fun | ction | | | | | | | | |
| Electromagnetic compatibility | | emission and imn | nunity acc | ording to | EN 613 | 26 | | | | | | |
| Mechanical stability | | | | | | | | | | | | |
| Vibration | | 10 g RMS (25 | 2000 Hz) | acco | ording to | DIN EN | 60068-2 | 2-6 | | | | |
| Shock | | 500 g / 1 msec | | acco | ording to | DIN EN | 60068-2 | 2-27 | | | | |
| Materials | | | | | | | | | | | | |
| Pressure port | | stainless steel 1.4 | 404 (316 | L) | | | | | | | | |
| Housing | | stainless steel 1.4 | | , | | | | | | | | |
| Seals (media wetted) | | FKM | | | | | | | | | | |
| Sensor | | stainless steel 1.4 | 404 (316 | L), silicor | , ероху | or RTV, | mineral | glass | | | | |
| Media wetted parts | | pressure port, se | als, senso | r | | | | | | | | |
| Explosion protection (only | y for 4. | 20 mA / 2-wire) | | | | | | | | | | |
| Approvals DX19-DMP 343 | | | 1 068 X / Ex ia IIC T D Ex ia III0 | 4 Ga | |)027X | | | | | | |
| Safety technical maximum | alues | $U_i = 28 V, I_i = 93$ the supply conne | | | | | | opposit | e the ho | ousing | | |
| Permissible temperatures for environment | or | in zone 0: in zone 1 or highe | | 60 °C 70 °C | with p _{atr} | m 0.8 bai | r up to 1 | .1 bar | | | | |
| Connecting cables | | cable capacitance | | line/shie | | | | | | | | |
| (by factory) | | cable inductance | signal | line/shie | ld also s | signal lin | e/signal | line: 1 µ | H/m | | | |
| Miscellaneous | | | | | | | | | | | | |
| Option SIL 2 application | | according to IEC | | | | | | | | | | |
| Current consumption | | | | ax. 25 mA | | | | | | | | |
| Current consumption | | signal output curr signal output volt | | ax. 25 m/ ax. 7 mA | N | | | | | | | |
| Weight | | | | | <u> </u> | | | | | | | |
| • | | signal output volta | | | · · · · · · · · · · · · · · · · · · · | | | | | | | |
| Weight | | signal output volta approx. 140 g | age: ma | ax. 7 mA | | | | | | | | |



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DMP 343 Ordering Code

| DMP 343 | Щ-Ц | | | - | □- | Щ |]-[] | -[] | | |
|---|-------|----------------|--------|-----|----|-----|------|-----|------|---------|
| Pressure | | | | | | | | | | |
| Input [mbar] | 1 0 0 | | | | | | | | | |
| 10 | 0 | 1 0 0 | | | | | | | | |
| 16 | 0 | 1 6 0 | | | | | | | | |
| 25 | 0 | 2 5 0 | | | | | | | | |
| 40 | | 4 0 0 | | | | | | | | |
| 60 100 | | 6 0 0 0 0 0 | | | | | | | | |
| 160 | | 6 0 0 | | | | | | | | |
| 250 | | 5 0 0 | | | | | | | | |
| 400 | | 0 0 0 | | | | | | | | |
| 600 | | 0 0 0 | | | | | | | | |
| 1000 | 1 | 0 0 1 | | | | | | | | |
| -1000 0 | X | 1 0 2 9 9 9 | | | | | | | | |
| Output | 9 | 9 9 9 | | _ | | _ | | | | consult |
| 4 20 mA / 2-wire | | | 1 | | | | | | | |
| 0 20 mA / 3-wire | | | 2 | | | | | | | |
| 0 10 V / 3-wire | | | 3 | | | | | | | |
| Intrinsic safety 4 20 mA / 2-wire | | | E | | | | | | | |
| customer | | | 9 | | | | | | | consult |
| Accuracy | | | | | | | | | | |
| standard for $P_N > 100$ mbar0.35 %standard for $P_N \le 100$ mbar0.5 % | | | 3 5 | | | | | | | |
| Electrical connection | | | 5 | | | | | | | |
| Male and female plug ISO 4400 | | | | 1 0 | 0 | | | | | |
| Male plug Binder series 723 (5-pin) | | | | 2 0 | | | | | | |
| Cable outlet with PVC cable ¹ | | | | TA | 0 | | | | | |
| Cable outlet ² | | | | TR | | | | | | |
| Male plug M12x1 (4-pin) / metal | | | | M 1 | 0 | | | | | |
| Compact field housing stainless steel 1.4305 | | | | 85 | 0 | | | | | |
| customer | | | | 99 | 9 | | | | | consult |
| Mechanical connection | | | | 0 0 | | | | | | |
| G1/2" DIN 3852 | | | | | | 1 0 | 0 | | | |
| G1/2" EN 837 | | | | | | | 0 | | | |
| G1/4" DIN 3852 | | | | | | 3 0 | 0 | | | |
| G1/4" EN 837 | | | | | | | 0 | | | |
| G1/2" DIN 3852 open pressure port 1/2" NPT | | | | | | | 0 | | | |
| 1/2 NPT 1/4" NPT | | | | | | | 0 | | | |
| customer ³ | | | | | | 9 9 | 9 | | | consult |
| Seals | | | | | | | | | | |
| FKM | | | | | | | 1 | | | |
| customer | | | _ | _ | _ | | 9 | | | consult |
| Special version standard | | | | | | | | 0 | 0 0 | |
| customer | | | | | | | | 9 | 99 | consult |
| | | | | | | | | - | - 10 | |

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube

 2 cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

 $^{\rm 3}$ metric threads and others on request



DMP 331

Industrial **Pressure Transmitter** for Low Pressure

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 0 ... 10 V others on request

Special characteristic

- perfect thermal behaviour
- excellent long term stability
- pressure port G 1/2" flush from 100 mbar

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases and dusts
- SIL 2-according to IEC 61508 / IEC 61511
- pressure sensor welded
- customer specific versions

The pressure transmitter DMP 331 can be used in all industrial areas when the medium is compatible with stainless steel 1.4404 (316 L) or 1.4435 (316 L). Additional are different elastomer seals as well as a helium tested welded version available.

The modulare concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions. Thus a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are



Plant and Machine Engineering

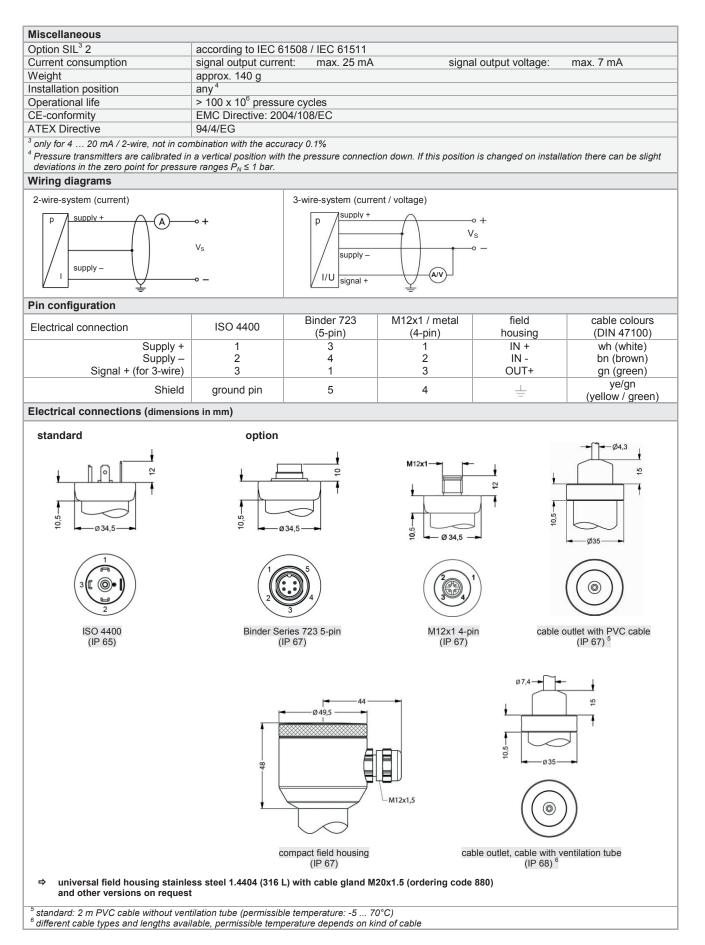
Environmental Engineering (water - sewage - recycling)



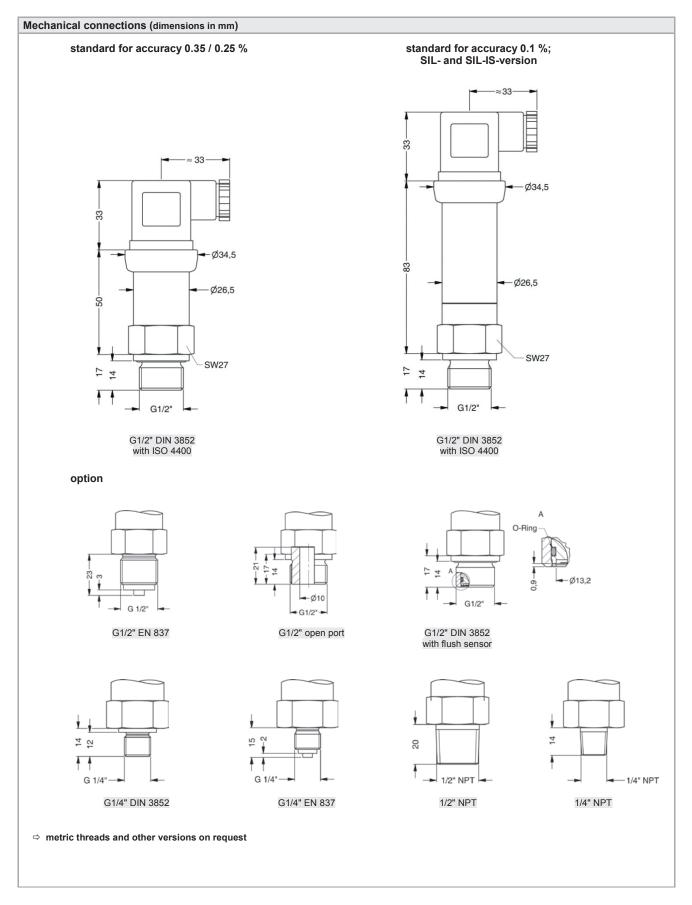
Energy Industry



| Input pressure range | | | | | | | | |
|--|--|--|--|----------------------------|---------------------------------|---------------|---------------|-----|
| | | | | | | | | |
| Nominal pressure [bar] | -10 | 0.10 | 0.16 | 0.25 | 0.40 | 0.60 | 1 | 1.6 |
| 0 0 | | 0.5 | 1 | 4 | 0 | | | 10 |
| Overpressure [bar] | | 0.5 | 1 | 1 | 2 | 5 | 5 | 10 |
| Burst pressure ≥ [bar] | 7.5 | 1.5 | 1.5 | 1.5 | 3 | 7.5 | 7.5 | 15 |
| Nominal pressure | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | |
| gauge / abs. [bar] | 2.5 | 4 | 0 | 10 | 16 | 25 | 40 | |
| Overpressure [bar] | 10 | 20 | 40 | 40 | 80 | 80 | 105 | |
| Burst pressure ≥ [bar] | 15 | 25 | 50 | 50 | 120 | 120 | 210 | |
| Vacuum resistance | P _N ≥ 1 bar: u P _N < 1 bar: o | | uum resistan | се | | 1 | | |
| Output signal / Supply | | | | | | | | |
| Standard | 2-wire 4 | 20 mA / | V _s = 8 | 32 Vpc | | | | |
| Option IS-protection | 2-wire: 4 | | | | | | | |
| Options 3-wire | 3-wire: 0 | | | | | | | |
| Options 3-wire | | 20 MA / 10 V / | V _S = 14 V _S = 14 | | | | | |
| Performance | | | | | | | | |
| Accuracy ¹ | standard: | nominal pre | ssure < 0.4 b | ar: ≤±0. | 5 % FSO | | | |
| | option 1: | nominal pre | ssure ≥ 0.4 b ssure ≥ 0.4 b al pressure: | ar: ≤±0. | 35 % FSO 25 % FSO 1 % FSO | | | |
| Permissible load | | | | | 1 /0130 | | | |
| | current 2-wil current 3-wil voltage 3-wi | re: R _{max} = 5 | | / 0.02 AJ 12 | | | | |
| Influence effects | supply: 0.05 | | | | | load: 0.05 % | ESO / ko | |
| | | | reference cor | ditiona | | 10au. 0.05 / | 51 30 / KS2 | |
| Long term stability | | | reference con | lations | | 0 | | |
| Response time | 2-wire: ≤ 10 | | | | | 3-wire: ≤ 3 n | isec | |
| ¹ accuracy according to IEC 60770 – lin | nit point adjustm | ent (non-linea | rity, hysteresis | , repeatability) | | | | |
| Thermal effects (Offset and Spa | n) | | | | | | | |
| Nominal pressure P _N [bar] | | -1 0 | | < 0 | .40 | | ≥ 0.40 | |
| Tolerance band [% FSO] | | ≤±0.75 | | ≤ : | ± 1 | | ≤ ± 0.75 | |
| in compensated range [°C] | - | 20 85 | | 0 | . 70 | | -20 85 | 5 |
| Permissible temperatures | | | | | | | | |
| Permissible temperatures | medium: electronics / storage: | environmen | -40 12 t: -40 8 -40 10 | 5 °C | | | | |
| Electrical protection | g | | | | | | | |
| Short-circuit protection | permanent | | | | | | | |
| Reverse polarity protection | no damage, | but also no t | function | | | | | |
| Electromagnetic compatibility | <u> </u> | | according to E | N 61326 | | | | |
| | Cimosion an | a minina inty c | | 11 01020 | | | | |
| Mechanical stability | | | | | | | | |
| Vibration | 10 g RMS (2 | 25 2000 H | z) according | to DIN EN 6 | 0068-2-6 | | | |
| Shock | 500 g / 1 ms | ec | according | to DIN EN 6 | 0068-2-27 | | | |
| Materials | | | | | | | | |
| Pressure port | stainless ste | el 1.4404 (3 | 16 L) | | | | | |
| Housing | stainless ste | | , | | | | | |
| Option compact field housing | | | 03), cable gla | and brass nic | kel plated | othe | ers on reques | st |
| Seals (media wetted) | standard: F options: E | | | | on request | | 510 01110400 | |
| Diaphragm | stainless ste | el 1.4435 (3 | 16 L) | | | | | |
| Media wetted parts | pressure po | | phragm | | | | | |
| ² welded version only with pressure por | ts according to | EN 837 | | | | | | |
| Explosion protection (only for 4 | 20 mA / 2 | wire) | | | | | | |
| Approvals DX19-DMP 331 | IBExU 10 A | TEX 1068 X I 1G Ex ia II0 | / IECEx IE C T4 Ga C T 85°C Da | BE 12.0027X | | | | |
| Safety technical maximum values | U _i = 28 V, I _i | = 93 mA, P _i : onnections h | = 660 mW, C nave an inner | capacity of n | nax. 27 nF to | | | |
| Permissible temperatures for environment | in zone 0: in zone 1 or | -20 higher: -20 |) 60 °C witl) 70 °C | n p _{atm} 0.8 bar | up to 1.1 ba | r | | |
| Connecting cables (by factory) | cable capac | the second secon | nal line/shield | | | | | |



DMP 331 Technical Data



This document contains product specifications; properties are not guaranteed. Subject to change without notice.

| DMP 331 | |]-[]-[] | | | □-□ | | |
|---|--|---------|----------------|----------------|--------|------------|----------|
| Pressure | 1 1 0 | | | | | | |
| gauge absolute | 1 1 0 1 1 1 | | | | | | |
| Input [bar] 0.10 | 1 0 0 0 | 2 | | | | | |
| 0.16 | 1 6 0 0 | C | | | | | |
| 0.25 | 2 5 0 0 4 0 0 0 | | | | | | |
| 0.60 | 6 0 0 0 | 0 | | | | | |
| 1.0 | 1 0 0 | 1 | | | | | |
| 1.6 2.5 | | 1 | | | | | |
| 4.0 | 4 0 0 | 1 | | | | | |
| 6.0 10 | 6 0 0 ⁻ 1 0 0 2 | 2 | | | | | |
| 16 | 1 6 0 2 2 5 0 2 | 2 | | | | | |
| 25 | 2 5 0 2 | 2 | | | | | |
| 40 -1 0 | 4 0 0 2 X 1 0 2 | 2 | | | | | |
| customer | 1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 1 X 1 0 1 9 9 9 9 | 9 | | | | | consult |
| Output 4 20 mA / 2-wire | | 1 | | | | | |
| 0 20 mA / 3-wire | | 2 | | | | | |
| 0 10 V / 3-wire | | 3 E | | | | | |
| Intrinsic safety 4 20 mA / 2-wire SIL2 4 20 mA / 2-wire | | L 1S | | | | | |
| SIL2 with intrinsic safety | | ES | | | | | |
| 4 20 mA / 2-wire customer | | 9 | | | | | consult |
| Accuracy | | | | | | | Contract |
| standard for $P_N \ge 0.4$ bar0.35 %standard for $P_N < 0.4$ bar0.5 % | | 3 5 | | | | | |
| standard for $P_N < 0.4$ bar 0.5% option 1 for $P_N \ge 0.4$ bar 0.25% | | 2 | | | | | |
| option 2 0.1 % 1 | | 1 | | | | | |
| Electrical connection | | 9 | | | | | consult |
| Male and female plug ISO 4400 | | | 1 0 0 2 0 0 | | | | |
| Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ² | | | 2 0 0 T A 0 | | | | |
| Cable outlet with P vC cable - Cable outlet 3 | | | T R 0 | | | | |
| Male plug M12x1 (4-pin) / metal | | | M 1 0 | | | | |
| Compact field housing stainless steel 1.4305 | | | 8 5 0 | | | | |
| customer | | | 999 | | | | consult |
| Mechanical connection G1/2" DIN 3852 | _ | | | 1 0 0 | | | |
| G1/2" EN 837 | | | | 2 0 0 | | | |
| G1/4" DIN 3852 G1/4" EN 837 | | | | 3 0 0 | | | |
| G1/4" EN 857 G1/2" DIN 3852 | | | | 400 | | | |
| with flush sensor | | | | F 0 0 | | | |
| G1/2" DIN 3852 open pressure port 1/2" NPT | | | | H 0 0 N 0 0 | | | |
| 1/4" NPT | | | | N 4 0 9 9 9 | | | |
| Customer | | | | 999 | | | consult |
| FKM | | | | | 1 | | |
| EPDM | | | | | 3 | | |
| NBR without (welded version) ⁴ | | | | | 5 2 | | |
| customer | | | | | 9 | | consult |
| Special version standard | | | | | 0 | | |
| customer | | | | | 9 | 0 0 9 9 | consult |
| | | | | | 1 | | |

¹ not in combination with SIL

² standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request
 ³ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

 $^{\rm 4}\,$ welded version only with pressure ports according to EN 837



DMP 333

Industrial Pressure Transmitter For High Pressure

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 60 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 0 ... 10 V others on request

Special characteristics

- excellent long-term stability, also with high dynamic pressure loads
- insensitive to pressure peaks
- high overpressure capability

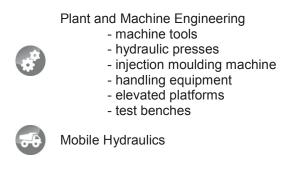
Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- SIL 2 version according to IEC 61508 / IEC 61511
- customer specific versions

The pressure transmitter type DMP 333 has been especially designed for use in hydraulic applications with high static and dynamic pressure. The transmitter is characterized by an excellent long term stability, also under fast changing pressure as well as positive and negative pressure peaks.

The modular concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions. Thus a diversity of variations is created, meeting almost all requirements in hydraulic applications.

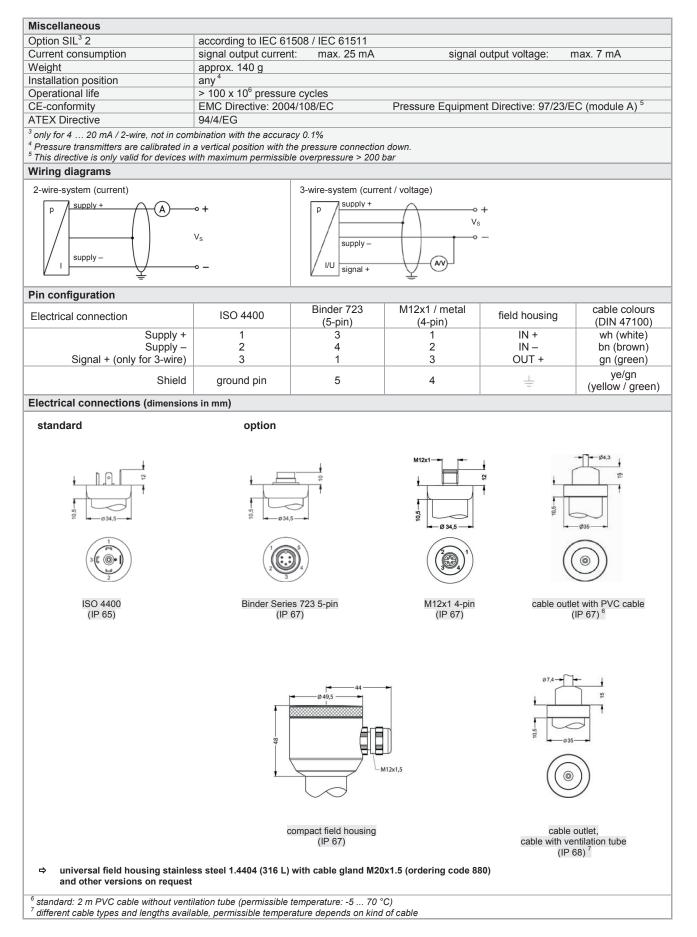
Preferred areas of use are



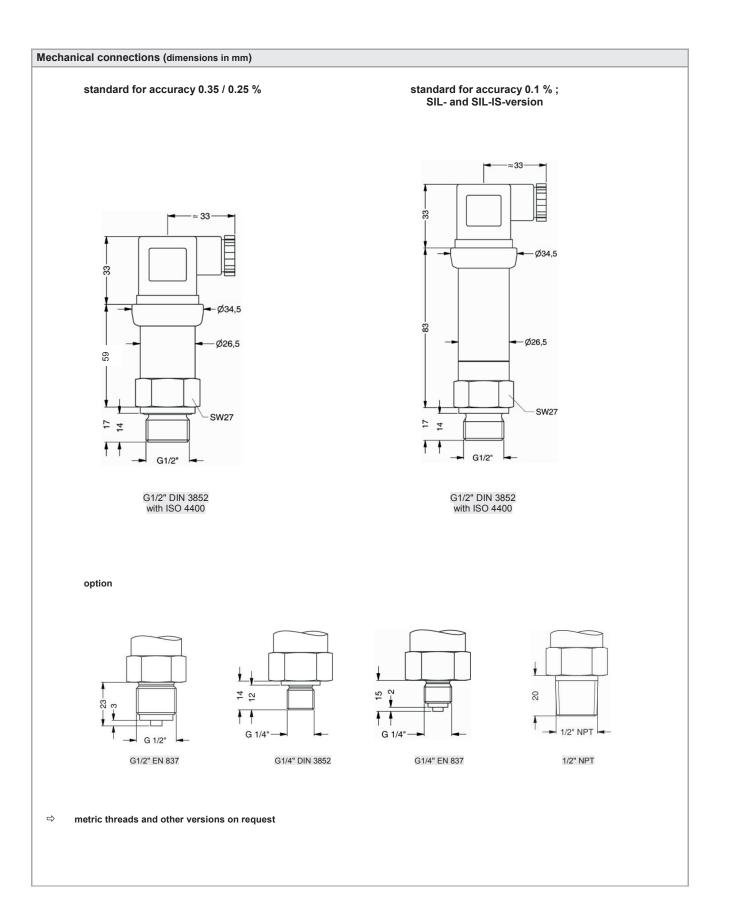


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| Input pressure range | | | | | | |
|--|--|--|--|---------------------|-----------|---------|
| Nominal pressure | | | | | | |
| gauge ¹ / abs. | bar] 60 | 100 | 160 | 250 | 400 | 600 |
| | bar] 210 | 600 | 600 | 1000 | 1000 | 1000 |
| · · · · | bar] 420 | 1000 | 1000 | 1250 | 1250 | 1250 |
| ¹ measurement starts with ambient | pressure | | | | | |
| Output signal / Supply | | | | | | |
| Output signal / Supply Standard | Q | 20 | 0 22.1/ | | | |
| Option IS-protection | | $20 \text{ mA} / \text{V}_{\text{S}} =$ $20 \text{ mA} / \text{V}_{\text{S}} =$ | | | | |
| Options 3-wire | | $20 \text{ mA} / \text{V}_{\text{S}} =$ 20 mA / V _S = | | | | |
| Options 3-wire | | $10 V$ / $V_s =$ | | | | |
| Performance | | | | | | |
| Accuracy ² | | 0.35 % FSO 0.25 % FSO 0.1 % FSO | | | | |
| Permissible load | current 2-wire: | | - V _s min) / 0.02 A] | Ω | | |
| | current 3-wire: voltage 3-wire: | R _{max} = 500 Ω R _{min} = 10 kΩ | | | | |
| Influence effects | supply: 0.05 % load: 0.05 % | | | | | |
| Long term stability | | year at reference | ce conditions | | | |
| Response time | 2-wire: ≤ 10 ms | ec | | | | |
| ² accuracy according to IEC 60770 | 3-wire: ≤ 3 ms - limit point adjustment | | eresis, repeatability) | | | |
| Thermal effects (Offset and S | Span) | | | | | |
| Tolerance band | ≤ ± 0.75 % FSC | I | | | | |
| in compensated range | 0 70 °C | | | | | |
| Permissible temperatures | | | | | | |
| Permissible temperatures | medium: electronics / env storage: | rironment: -40 | 125 °C 85 °C 100 °C | | | |
| Electrical protection | | | | | | |
| Short-circuit protection | permanent | | | | | |
| Reverse polarity protection | | also no function | | | | |
| Electromagnetic compatibility | | munity accordin | | | | |
| Mechanical stability | ' | · · · | - | | | |
| Vibration | 10 a RMS (25 . | . 2000 Hz) acco | ording to DIN EN 6 | 60068-2-6 | | |
| Shock | 100 g / 11 msec | | ording to DIN EN 6 | | | |
| Materials | | | | | | |
| Pressure port | stainless steel 1 | .4404 (316 L) | | | | |
| Housing | stainless steel 1 | | | | | |
| Option compact field housing | | | ole gland brass, ni | ckel plated | others on | request |
| Seals (media wetted) | NBF | M (for $P_N \le 160$ | bar) | | | |
| Diaphragm | stainless steel 1 | .4435 (316 L) | | | | |
| Media wetted parts | pressure port, s | eals, diaphragm | | | | |
| Explosion protection (only for | | | | | | |
| Approvals DX19-DMP 333 | zone 0: II 10 | X 1068 X / IEC S Ex ia IIC T4 Ga D Ex ia IIIC T 85° | | | | |
| Safety technical maximum valu | | | mW, $C_i \approx 0$ nF, L_i inner capacity of r | | housing | |
| Permissible temperatures for environment | in zone 0: in zone 1 or hig | -20 60 ° | °C with p _{atm} 0.8 ba | | 5 | |
| Connecting cables (by factory) | cable capacitan | ce: signal line/ | shield also signal | | | |
| | cable inductanc | e: signal line/ | shield also signal | line/signal line: 1 | uH/m | |



DMP 333 Technical Data



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DMP 333 Ordering Code

| DMP 3 | 333 | Щ | -[] | | - | | - | - | | | - | |]- | | Ц | |] |
|-----------------------|--------------------------------------|----------------|-----|--|------------------|--------|---|--------|--------|---|--------|---|----|--------|-----|---|---------|
| Pressure | 1 | | | | | | | | | | | | | | | | |
| | gauge ¹ absolute | 1 3 0 1 3 1 | | | | | | | | | | | | | | | |
| Input | [bar] | . • . | | | | | | | | | | | | | | | |
| | 60 | | 6 | 0 0 | 2 | | | | | | | | | | | | |
| | 100 160 | | 1 | 0 0 6 0 5 0 0 0 0 0 9 9 | 3 3 3 3 | | | | | | | | | | | | |
| | 250 | | 2 | 5 0 | 3 | | | | | | | | | | | | |
| | 400 | | 4 | 0 0 | 3 | | | | | | | | | | | | |
| | 600 | | 6 | 0 0 9 9 | 3 | | | | | | | | | | | | |
| | customer | | 9 | 99 | 9 | | | | | | | | | | | | consult |
| Output | | | | | | | | | | | | | | | | | |
| | 1 20 mA / 2-wire 0 20 mA / 3-wire | | | | | 1 | | | | | | | | | | | |
| (| 0 10 V / 3-wire | | | | | 2 | | | | | | | | | | | |
| Intrinsic safety 4 | 1 20 mA / 2-wire | | | | | 3 E | | | | | | | | | | | |
| | 1 20 mA / 2-wire | | | | | 1S | | | | | | | | | | | |
| | vith Intrinsic safety | | | | | ES | | | | | | | | | | | |
| 4 | 1 20 mA / 2-wire | | | | | - | | | | | | | | | | | |
| A | customer | | _ | _ | _ | 9 | _ | _ | | | _ | | | | | | consult |
| Accuracy standard | 0.35 % | | | | | | 3 | | | | | | | | | | |
| option 1 | 0.35 % | | | | | | 2 | | | | | | | | | | |
| option 2 | 0.10 % 2 | | | | | | 1 | | | | | | | | | | |
| | customer | | | | | | 9 | | | | | | | | | | consult |
| Electrical connection | | | | | | | | | | | | | | | | | |
| | nale plug ISO 4400 | | | | | | | 1 | | 0 | | | | | | | |
| Male plug Binder | tlet with PVC cable ³ | | | | | | | 2 T | 0 | 0 | | | | | | | |
| Cable ou | Cable outlet ⁴ | | | | | | | T | A R | 0 | | | | | | | |
| Male plug M1 | 2x1 (4-pin) / metal | | | | | | | M | | 0 | | | | | | | |
| | npact field housing | | | | | | | | | | | | | | | | |
| | inless steel 1.4305 | | | | | | | 8 | | | | | | | | | |
| | customer | | | | | | | 9 | 9 | 9 | | | | | | | consult |
| Mechanical connectio | | | | | | | | | | | | | | | | | |
| | G1/2" DIN 3852 G1/2" EN 837 | | | | | | | | | | 1 | | 0 | | | | |
| | G1/4" DIN 3852 | | | | | | | | | | 2 3 | 0 | 0 | | | | |
| | G1/4" EN 837 | | | | | | | | | | 4 | 0 | 0 | | | | |
| | 1/2" NPT | | | | | | | | | | N | 0 | 0 | | | | |
| | customer | | | | | | | | | | 9 | 9 | 9 | | | | consult |
| Seals | | | | | | | | | | | | | | | | | |
| | FKM | | | | | | | | | | | | | 1 | | | |
| | EPDM ⁵ NBR | | | | | | | | | | | | | 3 | | | |
| | customer | | | | | | | | | | | | | 5 9 | | | consult |
| Special version | Gustomer | | | | | | | _ | | | | | | 3 | | | Consult |
| | standard | | | | | | | | | | | | | | 0 0 | | 1 |
| | customer | | | | | | | | | | | | | | 9 9 | | consult |
| | | | | | | | | | | | | | | | · | Ċ | |

¹ measurement starts with ambient pressure

² not in combination with SIL

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally without ventilation tube

⁴ cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

 $^{\rm 5}$ possible for nominal pressure ranges $\rm P_{\rm N} \leq 160$ bar

⁵⁰ INDUSTRIAL PRESSURE TRANSMITTER



DMP 339

Industrial Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770: 0,35 % FSO

Nominal pressure

from 0 ... 60 bar to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 0 ... 10 V others on request

Special characteristics

- ▶ mechanical connection: G ¼" flush
- suitable for viscous and pasty media

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- several electrical connections
- customer specific versions

The DMP 339 industrial pressure transmitter features a G ¼" flush pressure port and was designed for the use in a range of machinery including metering systems. It is ideal for measuring the pressure of viscous and pasty media, as only a small dead space is created.

Material accumulation, dripping and stringing in machinery is eliminated. This increases the efficiency and reliability of your machines.

The DMP 339 is available with various electrical connections, ensuring an excellent adaption to the application conditions.

Preferred areas of use are:



Plant and Machine Engineering - especially conveyor plants and dosing systems

Hydraulics

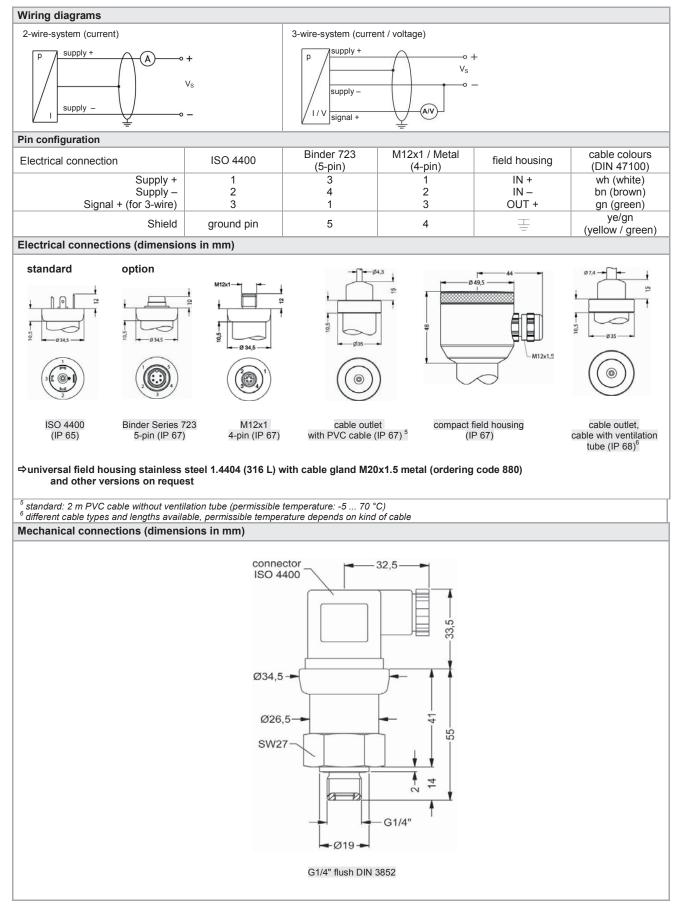




DMP 339 Technical Data

| Input pressure range ¹ | | | | | | |
|---|-----------------------------|--|---|----------------------------------|-------------------|-------------------------|
| Nominal pressure | [bar] 60 | 100 | 160 | 250 | 400 | 600 |
| gauge / abs. | | 010 | 000 | 000 | 4050 | 1050 |
| Overpressure | [bar] 210 | 210 | 600 | 600 | 1050 | 1050 |
| Burst pressure ≥ | [bar] 300 | 300 | 1100 | 1100 | 1500 | 1500 |
| ¹ Nominal pressure P _N < 60 bar o | in request | | | | | |
| Output signal / Supply | | | | | | |
| Standard | 2-wire: 4 | 20 mA / V _S = | 8 32 Vpc | | | |
| Option IS-protection | | 20 mA / V _s = | | | | |
| Options 3-wire | | $ 20 \text{ mA} / \text{V}_{s} =$ | | | | |
| Options 5-wire | | $10 \text{ V} \text{ V}_{s} = 10 \text{ V} \text{ / V}_{s} =$ | | | | |
| Performance | | | | | | |
| Accuracy ² | ≤ ± 0.35 % F | SO | | | | |
| Permissible load | current 2-wir | e: $R_{max} = [(V_s - V_s)]$ | ' _s min) / 0.02 A] Ω | | | |
| | current 3-wir | e: R _{max} = 500 Ω | - , - | | | |
| Influence offecto | | $re: R_{min} = 10 k\Omega$ | 0.1/ | | | |
| Influence effects | supply: load: | 0.05 % FSO / 1 0.05 % FSO / k | | | | |
| Long term stability | | O / year at referen | | | | |
| Response time | 2-wire: ≤ 10 | | | | | |
| | 3-wire: ≤ 3 | | | | | |
| ² accuracy according to IEC 6077 | | | teresis, repeatability) | | | |
| Thermal effects (Offset and | | , | , ., ., | | | |
| Tolerance band | ≤ ± 1 % FSO | | | | | |
| in compensated range | -20 85 °C | | | | | |
| Permissible temperatures | 20 00 0 | | | | | |
| Permissible temperatures | medium: | 40 | 125 °C | | | |
| ennissible temperatures | | environment: -40 | | | | |
| | storage: | | 100 °C | | | |
| Electrical protection | 210.090. | 10 | | | | |
| Short-circuit protection | permanent | | | | | |
| Reverse polarity protection | | but also no functio | n | | | |
| Electromagnetic compatibility | | d immunity accordin | | | | |
| Mechanical stability | criticolori and | | 19 10 211 0 1020 | | | |
| Vibration | | | ording to DIN EN (| 60068.2.6 | | |
| Shock | 100 g / 11 m | | cording to DIN EN 6 cording to DIN EN 6 | | | |
| Materials | 100 g / 11 m | | | 50000-2-27 | | |
| | | | | | | |
| Pressure port | | | ERS) for G1/4" flu | ISN (DIN 3852) | | |
| Housing Option compact field housing | | el 1.4404 (316 L) | blo aland brass ni | ckol platod | | |
| option compact neit nousing | others on rec | | ble gland brass, ni | chei pialeu | | |
| Seals | FKM | μοσι | | | | |
| | others on rec | uest | | | | |
| Diaphragm | | el 1.4435 (316 L) | | | | |
| Media wetted parts | pressure por | | | | | |
| Explosion protection (only | | | | | | |
| | | | CEx IBE 12.0027X | , | | |
| Approvals DX19-DMP 339 | | 1G Ex ia IIC T4 G | | | | |
| | | I 1D Ex ia IIIC T 85 | | | | |
| Safety technical maximum va | | | 0 mW, C _i ≈ 0 nF, L _i | ≈ 0 µH. C:CND ≈ 2 | 7 nF | |
| Permissible temperatures for | c | | | | | |
| environment | -20 70 °C | | | | | |
| Connecting cables (by factor | | | /shield also signal | | | |
| Missellenseus | cable inducta | ince: signal line | e/shield also signal | line/signal line: 1 | JH/M | |
| Miscellaneous | atamat | ourrort. | 25 m A | olonal cutor t | | 7 |
| Current consumption | signal output | | 25 mA | signal output | voltage: max | x. 7 mA |
| Weight | approx. 120 | 9 | | | | |
| Installation position | any ³ | | | | | |
| | $> 100 \times 10^{\circ} r$ | pressure cycles | | | | |
| Operational life | | | D | Equipment D1 | | |
| | | /e: 2004/108/EC | Pressure | e Equipment Direc | ctive: 97/23/EC (| (module A) ⁺ |

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DMP 339 Ordering Code

| DMP 339 | <u>ш</u> . | ·Щ | | -[|]-[| -[| | | -[| | | -[|]-[| Ţ | | | |
|--|------------|------------|-------------------|--------|-----|--------|---|--------|----|---|---|----|-----|-----|---|----|-------|
| Pressure | | | | | | | | | | | | | | | | | |
| gauge | 1 3 5 | | | | | | | | | | | | | | | | |
| absolute | 1 3 6 | | | | | | | | | | | | | | | | |
| Input [bar] ¹ | | | | | | | | | | | | | | | | | |
| 60 | | 6 0 | 0 2 0 3 0 3 | | | | | | | | | | | | | | |
| 100 | | 1 0 | 0 3 | | | | | | | | | | | | | | |
| 160 | | 1 6 | 0 3 | | | | | | | | | | | | | | |
| 250 | | 2 5 | 03 | | | | | | | | | | | | | | |
| 400 | | 2 5 4 0 | 0 3 | | | | | | | | | | | | | | |
| 600 | | 6 0 | 0 3 | | | | | | | | | | | | | | |
| customer | | 99 | 0 3 9 9 | | | | | | | | | | | | | CO | nsult |
| Output | | | | | | | | | | | | | | | | | |
| 4 20 mA / 2-wire | | | | 1 | | | | | | | | | | | | | |
| 0 20 mA / 3-wire | | | | 2 | | | | | | | | | | | | | |
| 0 10 V / 3-wire | | | | 2 3 | | | | | | | | | | | | | |
| Intrinsic safety 4 20 mA / 2-wire | | | | E | | | 1 | | | | | | | | | | |
| customer | | | | 9 | | | | | | | | | | | | CO | nsult |
| Accuracy | | | | | | | | | | | | | | | | | |
| 0.35 % | | | | | 3 | | | | | | | | | | | | |
| customer | | | | | 9 | | | | | | | | | | | CO | nsult |
| Electrical connection | | | | | | | | | | | | | | | | | |
| Male and female plug ISO 4400 | | | | | | 1 | 0 | 0 | | | | | | | | | |
| Male plug Binder series 723 (5-pin) | | | | | | 2 | 0 | 0 | | | | | | | | | |
| Cable outlet with PVC cable ² | | | | | | 2 T | A | 0 0 | | | | | | | | | |
| Cable outlet ³ | | | | | | Т | R | 0 | | | | | | | | | |
| Male plug M12x1 (4-pin) / metal | | | | | | M | | | | | | | | | | | |
| Compact field housing | | | | | | 8 | 6 | | | | | | | | | | |
| stainless steel 1.4305 (303) | | | | | | | | | | | | | | | | | |
| customer | | | | | | 9 | 9 | 9 | | | | | | | | CO | nsult |
| Mechanical connection | | | | | | | | | | | | | | | | | |
| G1/4" DIN 3852 | | | | | | | | | F | | 2 | | | | | | |
| with flush sensor | | | | | | | | | г | 0 | 2 | | | | | | |
| customer | | | | | | | | | g | 9 | 9 | | | | | CO | nsult |
| Seals | | | | | | | | | | | | | | | | | |
| FKM | | | | | | | | | | | | 1 | | | | | |
| customer | | | | | | | | | | | | 9 | | | | CO | nsult |
| Special version | | | | | | | | | | | | | | | | | |
| standard | | | | | | | | | | | | | (| 0 0 | 0 | | |
| customer | | | | | | | | | | | | | 9 | 9 9 | 9 | | nsult |
| | | | | | | | | | | | | | | | | | |

 1 nominal pressure gauge $P_N < 60\,$ bar on request 2 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request 3 cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable



DMP 335

Industrial **Pressure Transmitter**

Welded, Dry Stainless Steel Sensor

accuracy according to IEC 60770: 0.5 <u>% FSO</u>

Nominal pressure

from 0 ... 6 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Special characteristics

- suitable for oxygen applications
- insensitive to pressure peaks
- high overpressure capability

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases and dusts
- customer specific versions

The industrial pressure transmitter DMP 335 is based on a stainless steel welded pressure sensor without fluid.

This characteristic has a special advantage with applications where silicon oil or elastomeric seals cannot be used.

Bevorzugte Anwendungsgebiete



Medical Technology





Plant and Machine Engineering



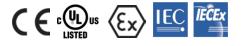
Mobile Hydraulics



Refrigeration



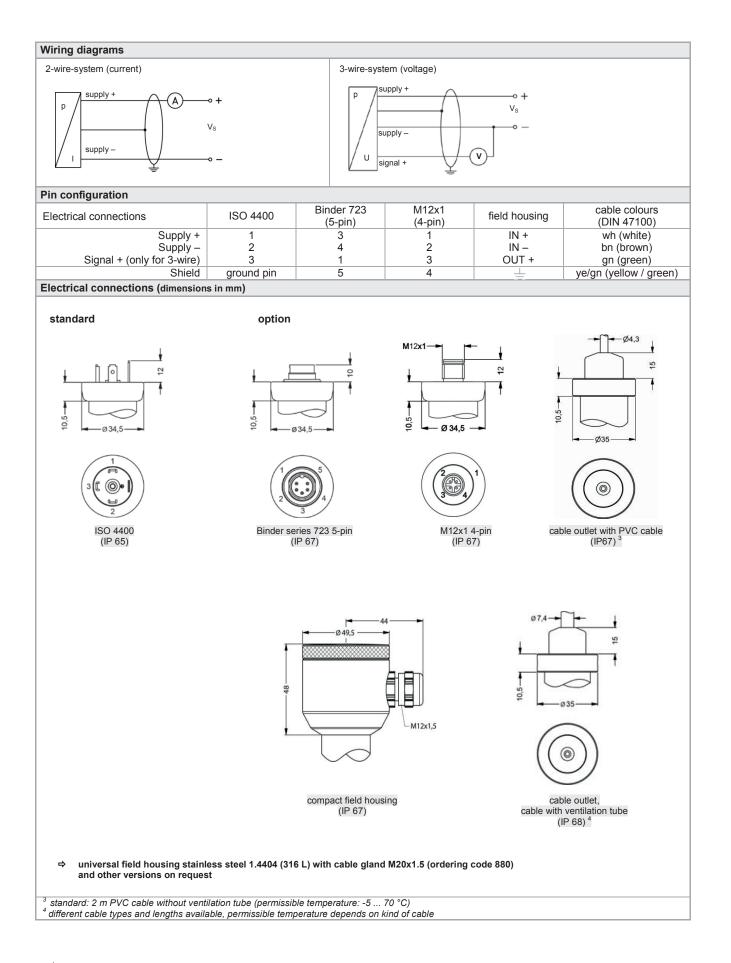
Oxygen application



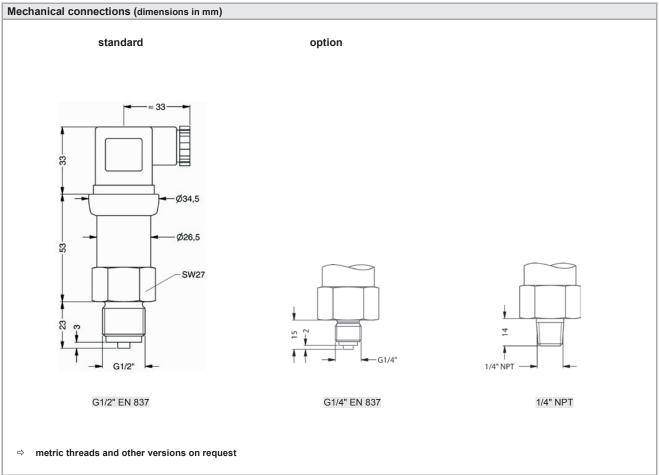
DMP 335 Technical Data

| Input pressure range | | | | | | | | | | | | |
|--|-----------|--------------------|-----------------------|--------------|---|--------------------|------------|------------|------------|------------|-------|------|
| Nominal pressure gauge | [bar] | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 |
| Overpressure | [bar] | 14 | 35 | 35 | 70 | 140 | 140 | 350 | 350 | 700 | 1200 | 1200 |
| Burst pressure ≥ | [bar] | 35 | 85 | 85 | 175 | 350 | 350 | 850 | 850 | 1750 | 2100 | 2100 |
| Vacuum resistance | | unlimite | d | | | | | | | | | |
| | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | |
| Standard | | 2-wire: | 4 2 | 0 mA / | V _S = 8 | 32 Vpc | | | | | | |
| Option IS-version | | 2-wire: | | | $V_{\rm S} = 0$ $V_{\rm S} = 10$ | | | | | | | |
| Option 3-wire | | 3-wire: | | | $V_{\rm S} = 10$ V _S = 14 | | | | | | | |
| Performance | | 0-0010. | 01 | 0 0 7 | VS - 14 | 00 000 | | | | | | |
| | | | | | | | | | | | | |
| Accuracy ¹ | | ≤ ± 0.5 | | | | | | | | | | |
| Permissible load | | | | | Vs – Vs min |) / 0.02 A | Ω | | | | | |
| | | | 3-wire: | | | | | | | | | |
| Influence effects | | | 0.05 % | | | | | | | | | |
| | | load: | | FSO / kΩ | | | | | | | | |
| Long term stability | | | | | eference c | onditions | | | | | | |
| Response time | | - | ≤ 10 mse | 2 | | | | | | | | |
| | | 3-wire: | ≤ 3 msec | | | | | | | | | |
| ¹ accuracy according to IEC 607 | 70 – limi | it point adju | ustment (no | on-linearity | , hysteresi | s, repeatab | ility) | | | | | |
| Thermal effects (Offset an | d Span |) | | | | | | | | | | |
| Thermal error | | ± 0.3 % | FSO / 10 | K | | | | | | | | |
| in compensated range | | 070 | | | | | | | | | | |
| Permissible temperatures | | | - | | | | | | | | | |
| Permissible temperatures | | medium | | | 40 | 125 °C | | | | | | |
| Permissible temperatures | | | i. iics / envii | onmont. | | 125°C | | | | | | |
| | | storage | | onnent. | | 100 °C | | | | | | |
| | | Storage | • | | -+0. | 100 0 | | | | | | |
| Electrical protection | | | | | | | | | | | | |
| Short-circuit protection | | perman | | | | | | | | | | |
| Reverse polarity protection | | | age, but a | | | | | | | | | |
| Electromagnetic compatibilit | ty | emissio | n and imr | nunity ac | cording to | EN 6132 | 6 | | | | | |
| Mechanical stability | | | | | | | | | | | | |
| Vibration | | 20 g RN | AS (25 | 2000 Hz |) acc | cording to | DIN EN (| 60068-2-0 | 6 | | | |
| Shock | | 500 g / | | | / | cording to | | | | | | |
| Materials | | J | | | | J | | | | | | |
| Pressure port | | etainles | s steel 1.4 | 1571 (31 | 6 Ti) | | | | | | | |
| Housing | | | s steel 1.4 | | | | | | | | | |
| | ~ | | | | / | ulavad kuaa | | ام ا م ا | - 44 | | | |
| Option compact field housin | g | | | +305 (30 | 3), cable g | giand bras | s, nickei | plated | Otr | ners on re | quest | |
| Seals (media wetted) | | none (w | / | 4540 (47 | | | | | | | | |
| Diaphragm | | | s steel 1.4 | | -4PH) | | | | | | | |
| Media wetted parts | | | e port, dia | aphragm | | | | | | | | |
| Explosion protection (only | / for 4 . | | , | | | | | | | | | |
| Approvals | | - | | | / IECEx | IBE 12.00 |)27X | | | | | |
| DX19-DMP 335 | | zone 0: | | | C T4 Ga | | | | | | | |
| | | zone 20 | | | IC T 85°C | | | | | | | |
| Safety technical maximum v | alues | | | | = 660 mV | | | | | | | |
| , | | the sup | | | ive an inne | | | | the hous | ing | | |
| Permissible temperatures for | or | in zone | | | bei p _{atm} 0. | 8 bar up 1 | o 1.1 bar | | | | | |
| environment | | in zone | | 70 °C | | | | | | | | |
| Connecting cables (by facto | ry) | cable ca | apacitanc | e: sig | gnal line/sł | nield also | signal lin | e/signal l | ine: 160 p | oF/m | | |
| | | cable in | ductance | : sig | gnal line/sł | nield also | signal lin | e/signal l | ine: 1 μH/ | m | | |
| Miscellaneous | | | | | | | | | | | | |
| Current consumption | | signal o | utput curr | ent: | max. 25 m | A | | | | | | |
| | | | utput volta | | nax. 7 mA | | | | | | | |
| Weight | | approx. | | | | | | | | | | |
| Installation position | | any | | | | | | | | | | |
| Operational life | | | 10 ⁶ press | | 29 | | | | | | | |
| CE-conformity | | | rective: 2 | 10/1/100/ | FC | | | | | | | |
| | | | | | | | | | | | | |
| 5 | | Drocour | | | t_{1} | $2/L(\cdot)/m^{2}$ | | | | | | |
| ATEX Directive | | Pressur 94/4/EG | | ent Direc | tive: 97/2 | 3/EC (mo | dule A) - | | | | | |

DMP 335 Technical Data



DMP 335 Technical Data



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| DMP 335 | | -0-0 | - | D. | - | | - 🗌 | -Щ | П | |
|--|---|-------------|------------|----|------------|---|-----|-------|-------|---------|
| Pressure | | | | | | | | | | |
| gauge | 2 1 0 | | | | | | | | | |
| Input [bar] | | | | | | | | | | |
| 6 | 6 0 0 1 | | | | | | | | | |
| 10 | $\begin{array}{ccccccc} 1 & 0 & 0 & 2 \\ 1 & 6 & 0 & 2 \\ 2 & 5 & 0 & 2 \\ 4 & 0 & 0 & 2 \\ 6 & 0 & 0 & 2 \\ 1 & 0 & 0 & 3 \end{array}$ | _ | | | | | | | | |
| 16 | 1 6 0 2 2 5 0 2 | | | | | | | | | |
| 25 40 | 2 5 0 2 4 0 0 2 | _ | | | _ | | | | | |
| 60 | 6 0 0 2 | | | | | | | | | |
| 100 | 1 0 0 3 | | | | | | | | | |
| 160 | 1 6 0 3 | | | | | | | | | |
| 250 | 2 5 0 3 | | | | | | | | | |
| 400 | 2 5 0 3 4 0 0 3 | | | | | | | | | |
| 600 | 6 0 0 3 9 9 9 9 | | | | | | | | | |
| customer | 2 5 0 3 4 0 0 3 6 0 0 3 9 9 9 9 9 | | | | | | | | | consult |
| Output | | | | | | | | | | |
| 4 20 mA / 2-wire | | 1 | | | | | | | | |
| 0 10 V / 3-wire | | 3 | | | | | | | | |
| Intrinsic safety 4 20 mA / 2-wire | | 3 E 9 | | | | | | | | |
| customer | | 9 | | | | | | | | consult |
| Accuracy 0.5 % | | - | | | | | | | | |
| customer | | 5 9 | | | | | | | | consult |
| Electrical connection | | 9 | | | | | | | | Consult |
| Male and female plug ISO 4400 | | _ | 1 0 | 0 | | | | | | |
| Male plug Binder series 723 (5-pin) | | | | 0 | | | | | | |
| Cable outlet with PVC cable ¹ | | | 2 0 T A | | | | | | | |
| Cable outlet with cable ² | | | TR | 0 | | | | | | |
| Male plug M12x1 (4-pin) / metal | | | M 1 | 0 | | | | | | |
| Compact field housing | | | 8 5 | 0 | | | | | | |
| stainless steel 1.4305 | | | | | | | | | | |
| customer | | | 99 | 9 | | | _ | | | consult |
| Mechanical connection | | | | | | | | | | |
| G1/2" EN 837 | | | | | 2 0 | 0 | | | | |
| G1/4" EN 837 1/4" NPT | | | | | 4 0 | 0 | _ | | | |
| customer | | | | | N 4 9 9 | 0 | | | | consult |
| Seals | | | | | 9 9 | 9 | | | | consult |
| without (welded version) | | | | | | | 2 | | | |
| customer | | | | | | | 9 | | | consult |
| Special version | | | | | | | | | | |
| standard | | | | | | | | 0 0 | 0 | |
| customer | | | | | | | | 9 9 | 9 | consult |
| | | | | | | | | - 1 - | 1 - 1 | |

 1 standard: 2 m PVC cable without ventilation tube (permissible temperatur: -5 \ldots 70 $^{\circ}C)$

² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable; price without cable



DMP 334

Industrial Pressure Transmitter for High Pressure

Thinfilm Sensor

accuracy according to IEC 60770: 0.35 % FSO

Nominal pressure

from 0 ... 600 bar up tp 0 ... 2200 bar

Analogue output

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Special characteristics

- extremly robust and excellent longterm stability
- pressure sensor welded

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- ▶ pressure port: M20 x 1.5 or 9/16 UNF
- adjustability of span and offset
- different kinds of electrical connections

The industrial pressure transmitter DMP 334 has been especially designed for use in hydraulic systems up to 2200 bar. The base element of DMP 334 is a thinfilm sensor, that is welded with the pressure port and meets high demands of and reliability.

All of characteristics and the excellent mesurement data of DMP 334 as well as distinguished offset stability offer a pressure transmitter with easy handling, reliability and robustness for hydraulic user. The DMP 334 is deliverable with standard HP connections.

Preferred areas of use are



Plant and Machine Engineering

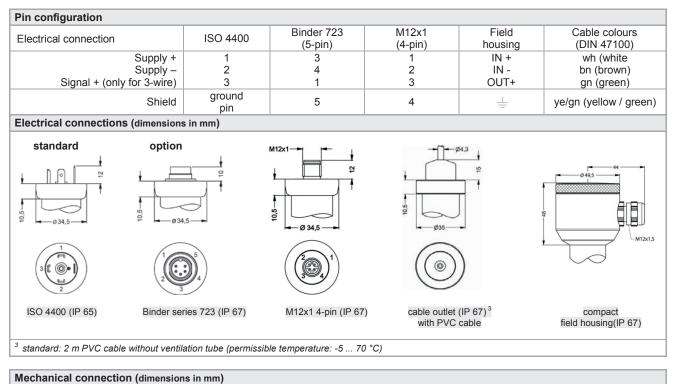


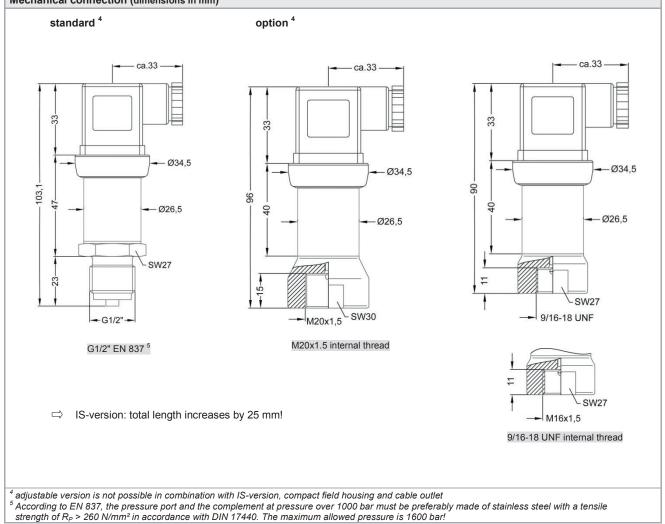
Commercial Vehicles and Mobile Hydraulics



| Input pressure range | | | | | | | |
|--|----------|---|---------------------------------------|---------------------|----------------------------------|-----------------------|---------------------|
| Nominal pressure gauge | [bar] | 600 ¹ | 1000 | | 1600 | 2000 | 2200 |
| Overpressure | [bar] | 800 | 1400 | | 2200 | 2800 | 2800 |
| ¹ only available with pressure port | G1/2" EN | 837 | | | | | |
| Output signal / Supply | | | | | | | |
| Standard | 2 | -wire: 4 20 | mA / $V_s = 2$ | 2 36 | V _{DC} | | |
| Option IS-protection | 2 | | mA / $V_s = 2$ | | - | | |
| Option 3-wire | | -wire: 0 10 \ | | | | | |
| Performance | 0 | -wite. 010 | 1 1 15 - | + 50 | V DC | | |
| | < | ± 0.35 % FSO IE | C 60770 ² | | | | |
| Accuracy Permissible load | | 1 U.35 % PSO IE | $R_{max} = [(V_s - V_s)]$ | (, min) | / 0.02 41 0 | | |
| | V | oltage 3-wire: | $R_{min} = 10 \ k\Omega$ | vs mm) | 7 0.02 AJ 32 | | |
| Influence effects | | upply: 0.05 % FS | | | | load: 0.05 % FSO / | kΩ |
| Long term stability | | ± 0.2 % FSO / ye | ar | | | | |
| Response time | | 5 msec | 4 in | 141- 1 41 | | 41 | |
| Adjustability | in | fluence of charac | teristic curve a | and accu | uracy. | the nominal pressur | e range, without an |
| ² accuracy according to IEC 6077 | | | | esis, repe | eatability) | | |
| Thermal effects (Offset and | | | - | | | | |
| Thermal error | ≤ | ± 0.25 % FSO / 1 | | | ated range -20 8 | | |
| Permissible temperatures | m | edium: -40 140 | °C elec | tronics | / environment: -25 | 85 °C stor | rage: -40 100 °C |
| Electrical protection | | | | | | | |
| Short-circuit protection | p | ermanent | | | | | |
| Reverse polarity protection | n | o damage, but als | so no function | | | | |
| Electromagnetic compatibility | e | mission and immu | unity according | to EN | 61326 | | |
| Mechanical stability | | | | | | | |
| Vibration | 1 | 0 g RMS (20 20 | 000 Hz) | | | | |
| Shock | | 00 g / 11 msec. | , | | | | |
| Materials | | <u> </u> | | | | | |
| Pressure port | s | ainless steel 1.45 | 42 (17-4 PH) | | | | |
| Housing | | | inless steel 1.4 | 404 (3 ⁻ | 161.) | | |
| | | | | | | prass, nickel plated | |
| Seals (media wetted) | n | one (welded versi | on) | | | | |
| Diaphragm | st | ainless steel 1.45 | 642 (17-4 PH) | | | | |
| Media wetted parts | р | ressure port / diap | ohragm | | | | |
| Explosion protection (only | for 4 2 | 20 mA / 2-wire) | | | | | |
| Approval DX13-DMP 334 | zc | | 3 X EEx ia IIC T4 EEx tD A20 IP | 65 T 85 | °C | | |
| Safety technical maximum va | | = 28 V, I _i = 93 m/ | | | | | |
| Permissible temperatures for | | zone 0: | | | p_{atm} 0.8 bar up to 1 | .1 bar | |
| environment | | zone 1 or higher: | | | | | |
| Connecting cables | ca | ble capacitance: | signal line/sh | eld also | signal line/signal l | | |
| (by factory) | Ca | ble inductance:si | gnal line/shiel | l also si | gnal line/signal line | e: 1µH/m | |
| Miscellaneous | | | | | | | |
| Current consumption | | gnal output curre gnal output voltag | | | | | |
| Weight | | pprox. 200 g | | | | | |
| Installation position | | ny | | | | | |
| CE-conformity | E | MC Directive: 200 | 04/108/EC | | Pressure Equipr | ment Directive: 97/23 | B/EC (module A) |
| Wiring diagrams | | | | | | | |
| 2-wire-system (current) | | | | 3-wire-s | ystem (current / volta | ge) | |
| P Supply + A Supply - E | Vs | - | | P /U | Supply + Supply - Signal + | | |

DMP 334 Technical Data





This document contains product specifications; properties are not guaranteed. Subject to change without notice.

| DMP 334 | | - | | - 🗌 | -[| -[| |]. | - 🗌 | |]. | - 🗌 | - | | | |
|---|-------|-------------------|-----|--------|----|--------|-----|----|-----|---|----|--------|---|---|--------|---------|
| Pressure | | | | | | | | | | | | | | | | |
| gauge | 1 4 0 | | | | | | | Т | | | | | | | | |
| Input [bar] | | | | | | | | | | | | | | | | |
| 600 ¹ | | 6 0 | 03 | | | | | | | | | | | | | |
| 1000 | | 1 0 | 0 4 | | | | | | | | | | | | | |
| 1600 | | 1 6 | 0 4 | | | | | | | | | | | | | |
| 2000 | | 2 0 | 0 4 | | | | | | | | | | | | | |
| 2200 | | 2 0 2 2 9 9 | 0 4 | | | | | | | | | | | | | |
| customer | | 99 | 99 | | | | | | | | | | | | | consult |
| Output | | | | | | | | | | | | | | | | |
| 4 20 mA / 2-wire | | | | 1 | | | | | | | | | | | | |
| 0 10 V / 3-wire | | | | 3 E | | | | | | | | | | | | |
| Intrinsic safety 4 20 mA / 2-wire | | | | E | | | | | | | | | | | | |
| customer | | | | 9 | | | | | | | | | | | | consult |
| Accuracy | | | | | | | | | | | | | | | | |
| 0.35 % | | | | | 3 | | | | | | | | | | | |
| customer | | | | | 9 | | | | _ | | | _ | | | | consult |
| Electrical connection | | | | | | | | | | | | | | | | |
| Male and female plug ISO 4400 | | | | | | 1 | |) | | | | | | | | |
| Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ^{2,3} | (| | | | | 2 T | 00 |) | | | | | | | | |
| | | | | | | M | |) | | | | | | | | |
| Male plug M12x1 (4-pin) / metal | | | | | | IV | | , | | | | | | | | |
| Comapct field housing stainless steel 1.4404 (316L) | | | | | | 8 | 5 0 |) | | | | | | | | |
| customer | | | | | | 0 | | | | | | | | | | |
| Mechanical connection | | | | | | 9 | 99 | 1 | | | | | | | | consult |
| G1/2" EN 837 ⁴ | | _ | | | | | | - | 2 | 0 | 0 | | | | | |
| M20x1.5 internal thread | | | | | | | | | D | 2 | 8 | | | | | |
| 9/16 UNF internal thread | | | | | | | | | V | 2 | 0 | | | | | |
| customer | | | | | | | | | q | | 9 | | | | | consult |
| Seals | | | | | | | | | 5 | 5 | 5 | | | | | Consult |
| without (welded version) | | | | | | | | | | | | 2 | | | | |
| customer | | | | | | | | | | | | 2 9 | | | | consult |
| Special version | | _ | | | | _ | | | | | | | | | | |
| standard (adjustable) ⁵ | | | | | | | | | | | | | 0 | 4 | 1 | |
| only for IS version | | | | | | | | | | | | | 0 | 0 | 0 | |
| customer | | | | | | | | | | | | | 9 | 9 | 0 9 | consult |
| | | | | | | | | | | | | | | | | |

¹ only available with pressure port G1/2" EN 837

² different cable types and lengths deliverable

³ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube

⁴ According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile

strength of R_P > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!

⁵ not possible in combination with IS-version, compact field housing and cable outlet with PVC cable



DMP 304

Industrial Pressure Transmitter for Ultra High Pressure

accuracy according to IEC 60770: standard: 0.5 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 2 000 bar up to 0 ... 6 000 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V (on request)

Special characteristics

- adjustability of offset and span via front sided potentiometers
- pressure port 9/16" UNF
- 80 % calibration signal with MIL / Bendix plug

Optional versions

- IS-version:
 Ex ia = intrinsically safe for gases
- accuracy according to IEC 60770: 0.25 % FSO
- ▶ pressure port M20x1.5 and M16x1.5

The ultra-high-pressure transmitter type DMP 304 has been especially designed for applications with highest demand on precision and reliability. DMP 304 series is based on a compensated strain gauge, bonded onto a stainless steel diaphragm.

Due to the rugged stainless steel housing usage under extreme conditions and in IS-required areas is no problem.

Preferred areas of use are



hydraulic circuits



water jet torching

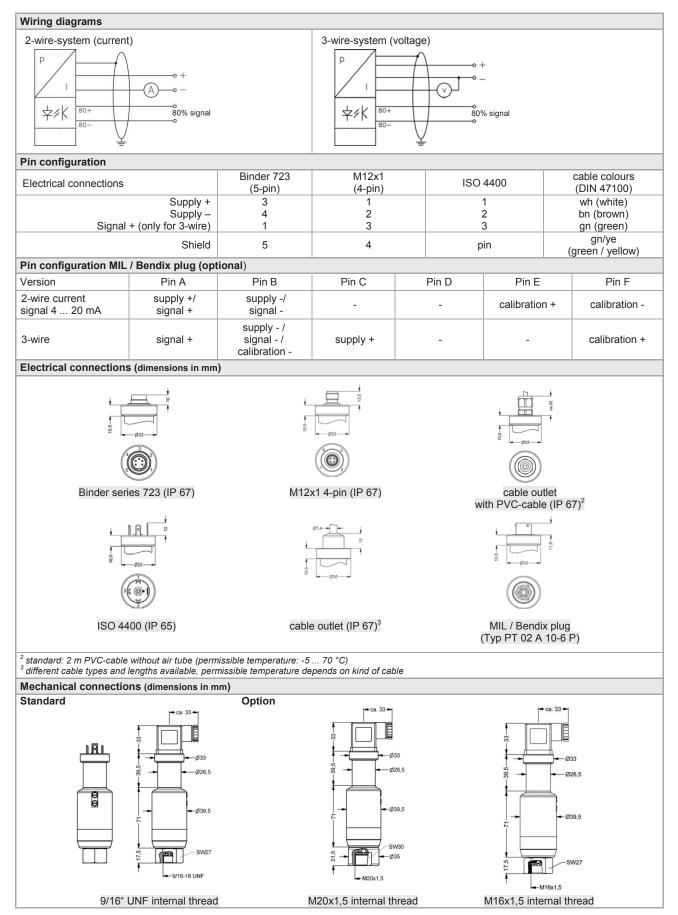


high pressure applications in chemical and petrochemical industry



| Input pressure range Nominal pressure gauge | [bar] | 2 000 | 4 000 | 5 000 | 6 000 |
|---|-------------|---|---|---|--------------|
| Overpressure | [bar] | 3 000 | 5 000 | 6 000 | 7 000 |
| Burst pressure | [bar] | 4 000 | 8 000 | 10 000 | 10 000 |
| Barot procedio | [bai] | 1000 | 0.000 | 10 000 | 10 000 |
| Output signal / Supply | | | | | |
| Standard | | 2-wire: 4 20 mA | / V _S = 10 30 V _{DC} | | |
| IS-protection | | 2-wire: 4 20 mA | / V _S = 10 28 V _{DC} | | |
| Option 3-wire (on request) | | | / V _S = 14 36 V _{DC} | | |
| Performance | | | | | |
| Accuracy ¹ | | standard: ≤ ± 0.50 % F | \$0 | | |
| | | | SO (on request) | | |
| Permissible load | C | current 2-wire: R _{max} = | $[(V_{\rm S} - V_{\rm S min}) / 0.02 \text{ A}] \Omega$ | | |
| | \ \ | voltage 3-wire: R _{min} = 7 | | | |
| Influence effects | | supply 0.05 % FSO / 10 \ | / | | |
| | | oad: 0.05 % FSO / kΩ | | | |
| Long term stability | | ± 0.2 % FSO / year | | | |
| Response time | | < 2.5 msec | motor is an adjustment of | the offect peccible within t | ha rango of |
| Adjustability | | | | the offset possible within t fluence of characteristic cu | |
| | | accuracy. | source range, without all lill | | |
| ¹ accuracy according to IEC 607 | | | y, hysteresis, repeatability) | | |
| Calibration (only with MIL | | | | | |
| Calibration signal accuracy | | ≤ ± 0.25 % FSO | | | |
| Calibration | | | g. for 4 20 mA / 2-wire: | signal = 0.8*16 mA + 4 mA | A = 16.8 mA) |
| Thermal effects (Offset an | d Span) | | | | |
| Thermal error | | ≤ ± 0.2 % FSO / 10 K | | | |
| | | n compensated range -2 | 0 85 °C | | |
| Permissible temperatures | | | | | |
| Permissible temperatures | | medium: | -40 85 °C | | |
| | | electronics / environment | ∷ -25 85 °C -40 85 °C | | |
| Electrical protection | ; | storage: | -40 05 C | | |
| Electrical protection | | | | | |
| Short-circuit protection Reverse polarity protection | | permanent no damage, but also no f | unction | | |
| Electromagnetic | | 0 | | | |
| compatibility | | emission and immunity a | ccording to EN 61326 | | |
| Mechanical stability | | | | | |
| Vibration | | 10 g RMS (20 2000 Hi | z) | | |
| Shock | | 100 g / 11 msec | , | | |
| Materials | | č | | | |
| Pressure port / diaphragm | : | stainless steel 1.4548 (17 | 7-4 PH) | | |
| Housing | | standard: stainless stee | | | |
| Seals (media wetted) | | none (welded version) | | | |
| Media wetted parts | | pressure port, diaphragm | 1 | | |
| IS-protection (only for 4 | . 20 mA / 2 | 2-wire) | | | |
| Approval DX17-DMP 304 | | zone 0: II 1G Ex ia IIC T4 | | | |
| Safety technical maximum | | U _i = 28 V, I _i = 93 mA, P _i = | | | |
| Permissible temperatures for | | | 60 °C with p _{atm} 0.8 bar u | ip to 1.1 bar | |
| environment | | zone 1 and higher: -25 | | signal ling/signal ling: 100 | nE/m |
| Connecting cables (by factory) | | | | signal line/signal line: 160 signal line/signal line: 1 µF | |
| Miscellaneous | | | | | |
| Insulation strength / resistar | nce | | | | |
| moulation strength / resistal | | standard: insulation st | | | |
| | | S-version: insulation re | 9 | V _{DC} 0 V _{AC} (relative to housing) | |
| | | | | a vac (relative to housing) | |
| 2 | | | | | |
| Current consumption | | 2-wire signal output curre | | | |
| | | 3-wire signal output volta | | | |
| Current consumption Weight Installation position | | | | | |

DMP 304 Technical Data



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| DMP 304 | |
|--|-------------------|
| Pressure | |
| | uge 2 2 0 |
| Input [| ar] |
| 2 | |
| 4 | |
| | |
| | |
| custo | ner 99999 consult |
| Output | |
| 4 20 mA / 2- | |
| Intrinsic safety 4 20 mA / 2- | |
| 0 10 V / 3- | |
| custo | ner 9 consult |
| Accuracy | |
| | 5% 5 |
| option 0.2 | |
| custo | ner 9 consult |
| Electrical connection Male and female plug ISO 4 | |
| Male plug Binder series 723 (5- | |
| Cable outlet with PVC-c | |
| Cable outlet with FVC-C | |
| Male plug M12x1 (4-pin), m | |
| Mile pidg M12X1 (4-pin), 1 MIL-/Bendix (Typ PT 02 A 10- | p) B G 0 consult |
| custo | |
| Mechanical connection | |
| 9/16" UNF internal thr | ead V 0 0 |
| M16x1.5 internal thr | |
| M20x1.5 internal thr | |
| custo | ner 9999 consult |
| Special version | |
| adjust | ble 0 4 1 |
| custo | |
| | |

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



DMK 351

Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Product characteristics

high media resistance

Optional versions

- **IS-version** Ex ia = intrinsically safe for gases and dusts
- diaphragm 99.9 % Al₂O₃
- customer specific versions

The pressure transmitter DMK 351 has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, optionally available as Al₂O₃ 99.9%, the DMK 351 offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for a use in explosive environments.

Preferred areas of use are



Plant and Machine Engineering





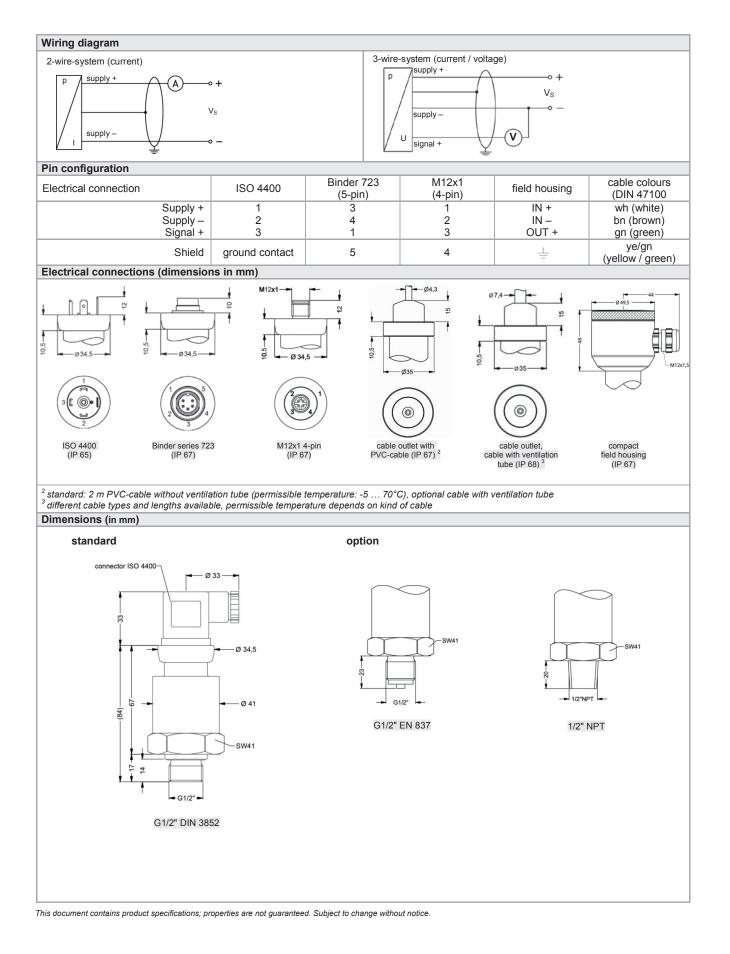
Preferred used for





| Pressure ranges | orl 0.04 | 0.06 | 0.1 | 0.16 | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 20 |
|---|-----------------|--|--------------------|----------------------|--|------------------------|---------------------|-----------------------------------|----------|----------------|---------------|----------|-----------|-----------|-----------|
| | ar] 0.04 | 0.06 | 0.1 | 0.16 | | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | |
| • | O] 0.4 arl 2 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 8 | 10 8 | 16 15 | 25 25 | 40 25 | 60 35 | 100 35 | 160 45 | 200 45 |
| | · . | | | 1 | 6 | 6 | | 0 | 15 | 25 | 25 | <u> </u> | 35 | 45 | 45 |
| Low pressure [b | ar] -0 |).2 | -(|).3 | | -(|).5 | | | | | -1 | | | |
| Output signal / Supply | | | | | | | | | | | | | | | |
| Standard | 2-wire | ə: | 4 | 20 m | A/Vs: | = 9 3 | 32 Vpc | | | | | | | | |
| Option IS-protection | | | | | | | | | | | | | | | |
| option to-protection | 2-wire Optio | e : n 3-wire | | | A / V _S = / / V _S | | | | | | | | | | |
| Performance | | | | | | | | | | | | | | | |
| Accuracy ¹ | stand optior | ard: n for P _N | ≥ 0.6 | | $\leq \pm 0.3$ $\leq \pm 0.2$ | | | | | | | | | | |
| Permissible load | currer | nt 2-wir | e R _{max} | = [(V _s - | - V _{Smin}) | / 0.02 | A] Ω | VO | Itage 3 | -wire: F | $R_{min} = 1$ | 0 k Ω | | | |
| Influence effects | | supply: 0.05 % FSO / 10 V | | | | | | | | | | | | | |
| Long term stability | | .1 % FS | | | | | | | | | | | | | |
| Turn-on time | 700 r | | , je | | | | | | | | | | | | |
| Mean measuring rate | 5/sec | | | | | | | | | | | | | | |
| Response time | | respoi | nse tim | ne: < 20 |)0 msed | c | | m | ax. res | ponse | time: 3 | 80 mse | ec | | |
| ¹ accuracy according to IEC 60770 - | | | | | | | eatabili | | | | | | | | |
| Thermal errors (Offset and Sp | | | | | ,,, | , i op | | | | | | | | | |
| Tolerance band | , | 1 % FS | SO / 10 | K | | | in com | pensat | ted ran | ae: -20 | | °C | | _ | |
| Permissible temperatures | 0. | . ,,,,, | | | | | | | .su run | 90. <u>2</u> 0 | 00 | 5 | | | |
| Permissible temperatures | | onics / | enviro | nment: | -40 . | 125 ° 85 ° 100 ° | °C | | | | | | | | |
| Electrical protection | storaç | je. | | | -40. | 100 | 0 | | | | | | | | |
| Short-circuit protection | norm | anont | | | | | | | | | | | | | |
| • | | anent | hut ala | o no fu | notion | | | | | | | | | | |
| Reverse polarity protection | | mage, | | | | to TN | 61226 | | | | | | | | |
| Electromagnetic compatibility | emiss | sion and | | mity ac | cording | IO EIN | 01320 | | | | | | | | |
| Mechanical stability | | | | | | | | | | | | | | | |
| Vibration | | RMS (20 | | 00 Hz) | | | accord | | | | | | | | |
| Shock | 100 g | / 1 mse | ec | | | | accord | ing to I | DIN EN | 60068 | -2-27 | | | | |
| Materials | | | | | | | | | | | | | | | |
| Pressure port | | ess ste | | | , | | | | | | | | | | |
| Housing | | ess ste | | | | | | | | | | | | | |
| Option compact field housing Seal (media wetted) | FKM EPDN | ess ste ⁄I | el 1.43 | 05 (303 | 3) with a | cable g | land br | ass, ni | ckel pla | ated | 0 | thers o | n requ | est | |
| Diaphragm | stand | ard: ce n: ce | | | 96 % 99.9 % | | | | | | | | | | |
| Media wetted parts | press | ure por | t, seals | s, diaph | ragm | | | | | | | | | | |
| IS-protection (only for 4 20 | mA / 2-w | vire) | | | | | | | | | | | | | |
| Approval DX 14-DMK 351 | | 05 AT | | | | | | | | | | | | | |
| | Z | one 0: one 20: | II 10 II 1D | 6 Ex ia l | | | | | | | | | | | |
| | Z | version one 0: one 20: | II 1G | | | | | | | | | | | | |
| Safety technical maximum values | | 8 V _{DC} , I | | | | | ≤ 27 nF | ⁼ , L _i ≤ 5 | 5 μΗ | | | | | | |
| Max. permissible temperature for environment | | e 0: e 1 and | l highe | | 60 °C 70 °C | | _{tm} 0.8 b | ar up t | o 1.1 b | ar | | | | | |
| Connecting cables (by factory) | capac | | signal | line / s | hield al | so sigr | | | | | m | | | | |
| Miscellaneous | | | | | | | | | | | | | | | |
| Installation position | any | | | | | | | | | | | | | | |
| | | l output | currer | nt: max | . 21 mA | 1 | signal o | output | voltage | : max. | 5 mA | | | | |
| Current consumption | orgina | | | | | | | | 5- | | | | | | |
| Current consumption Weight | min. 2 | 200 g | | | | | | | | | | | | | |
| Weight | min. 2 | | oading | cycles | | | | | | | | | | | |
| • | min. 2 | 200 g x 10 ⁶ l directiv | | | | | | | | | | | | | |

DMK 351 Technical Data



| DMK 351 | | · 🛛 - 🔲 🕂 |
|---|---|---------------------------------------|
| Pressure in bar, gauge | 2 9 0 | |
| in bar, absolute in bar, sealed gauge | 2 9 1 | consult |
| in mH ₂ O, gauge | 2 9 2 2 9 3 | |
| in mH ₂ O, absolute in mH ₂ O, sealed gauge | 2 9 3 | consult consult |
| Input [mH ₂ O] [bar] | | |
| 0.4 0.04 0.6 0.06 | | |
| 1.0 0.10 1.6 0.16 | 1 0 0 0 1 6 0 0 | |
| 1.6 0.16 2.5 0.25 | 2 5 0 0 | |
| 4.0 0.40 6.0 0.60 | 4 0 0 0 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | |
| 10 1.0 | 1 0 0 1 | |
| 16 1.6 25 2.5 | 1 6 0 1 2 5 0 1 | |
| 25 2.5 40 4.0 | 4 0 0 1 | |
| 60 6.0 | 6 0 0 1 | |
| 100 10 160 16 | 1 0 0 2 1 6 0 2 | |
| 200 20 | 1 6 0 2 2 0 0 2 9 9 9 9 | consult |
| Output | 9 9 9 9 | Consuit |
| 4 20 mA / 2-wire 0 10 V / 3-wire | | |
| Intrinsic safety 4 20 mA / 2-wire | 3 E E E E E E E E E E E E E E E E E E E | |
| Accuracy | 9 | consult |
| standard 0.35 % | 3 | |
| option für P _N ≥0.6 bar: 0.25 % customer | 2 9 | consult |
| Electrical connection | 9 | Consult |
| Male and female plug ISO 4400 | 1 0 0 | |
| Male plug Binder series 723 (5-pin) Cable outlet with PVC cable ¹ | 2 0 0 T A 0 | |
| Cable outlet with cable | T R 0 | |
| Male plug M12x1 (4-pin) / metal compact field housing | M 1 0 | |
| stainless steel 1.4305 | 8 5 0 | |
| Customer Mechanical connection | 9 9 9 | consult |
| G1/2" DIN 3852 | 1 0 0 | |
| G1/2" EN 837 1/2" NPT | 2 0 0 N 0 0 | |
| customer | 9 9 9 | consult |
| Seals FKM | 1 | |
| EPDM | 3 9 | |
| Customer Pressure port | 9 | consult |
| Stainless steel 1.4404 (316L) | 1 | |
| Customer Diaphragm | 9 | consult |
| Ceramics Al ₂ O ₃ 96% | | 2 |
| Ceramics Al ₂ O ₃ 99.9 % customer | | C consult |
| Special version | | |
| standard customer | | 0 0 0 9 9 9 consult |
| Gustomer | | o o o o o o o o o o o o o o o o o o o |

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C), optionally cable with ventilation tube



DMK 331

Industrial Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 0 ... 10 V others on request

Special characteristics

- pressure port G 1/2" flush for pasty and polluted media
- pressure port G 1/2" open port PVDF for aggressive media
- oxygen application

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- SIL 2 according to IEC 61508 / IEC 61511
- customer specific versions

The industrial pressure transmitter DMK 331 with ceramic sensor has been especially designed for pasty, polluted or aggressive media and for oxygen applications at low pressure range.

As with all industrial pressure transmitters made by BD|SENSORS, you may choose between various electrical and mechanical connections also on DMK 331.

Preferred areas of use are



Plant and Machine Engineering



Energy Industry

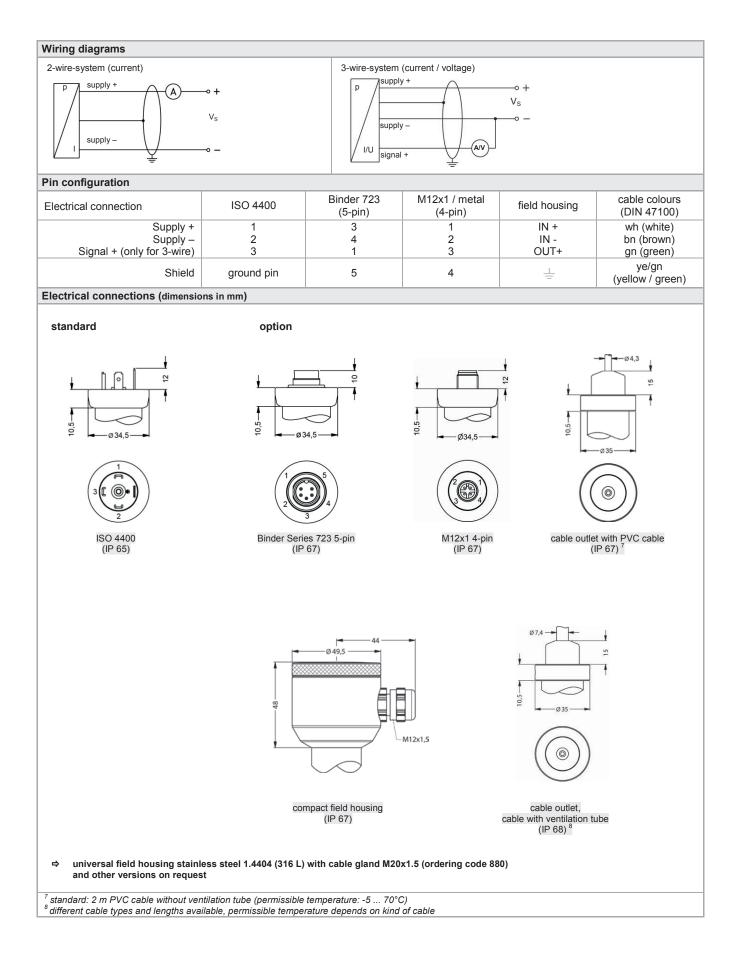


Environmental Engineering (water - sewage - recycling)

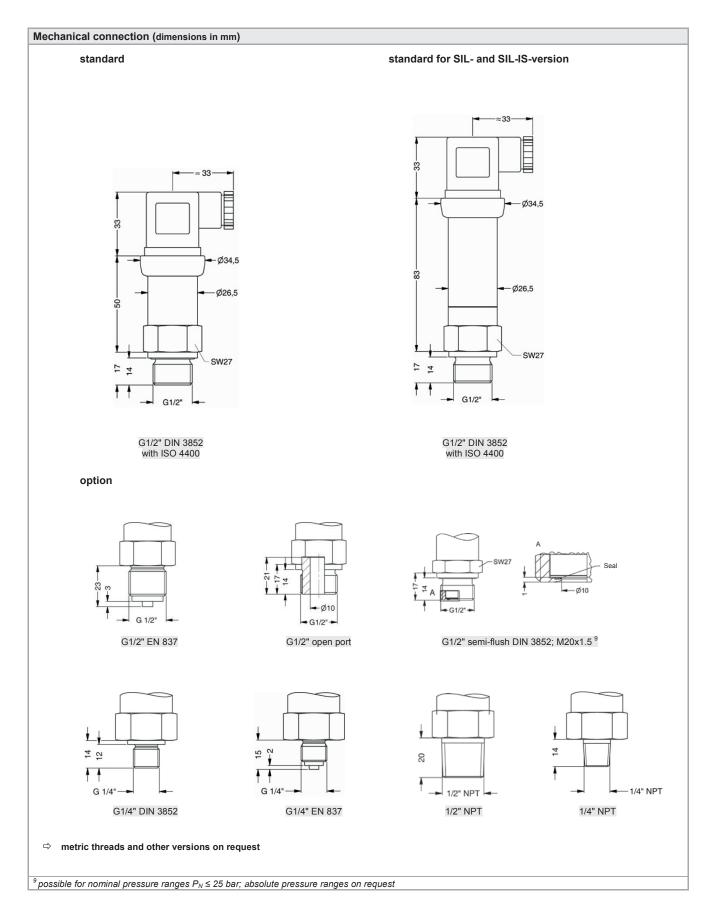


| | [bar] -1 | 0 0.4 | 0.6 | 1 | 1,6 | 2,5 | 4 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 |
|--|--|---|--|--|--|--|---|--|--|---|---|--|----------------------------------|-------------------------|----------|------------------|-----|
| Nominal pressure abs. | [bar] - 1 | J 0.4 | 0.6 | 1 | 1,6 | 2,5 | 4 6 | | 16 | 25 | 40 | 60 | | 160 | 250 | | 600 |
| | [bar] - | - 1 | 2 | 2 | 4 | | 10 1 | | 40 | 40 | | 100 | | 400 | 400 | - | 80 |
| • | | 2 | 4 | 4 | 4 5 | | | | 50 | | | | | | | | |
| | | | | | | | | 2 25 | 50 | 50 | | | | | 500 | | 88 |
| Vacuum resistance | | 1 bar: u | | | | resistar | nce | | | | | $P_N <$ | 1 bar: | on re | equest | [| |
| ¹ PVDF pressure port possible fo ² nominal pressure 600 bar with | or nominal pi out UL certifi | essure ra cation | anges u | ip to 6 | 0 bar | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | | | |
| Standard | 2-wi | re: 4. | 20 m | ηA / | Vs = | 8 32 | 2 V _{DC} | | | | | | | | | | |
| Option IS-protection | | re: 4. | | | | | | | | | | | | | | | |
| Options 3-wire | | 3-wire: $0 \dots 20 \text{ mA} / \text{V}_{\text{S}} = 14 \dots 30 \text{V}_{\text{DC}}$ | | | | | | | | | | | | | | | |
| | | | | | | 14 30 | | | | | | | | | | | |
| Performance | | | | | | | | | | | | | | | | | |
| Accuracy ³ | | 0.5 % FS | | | | | | | | | | | | | | | |
| Permissible load | | current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ current 3-wire: $R_{max} = 500 \Omega$ voltage 3-wire: $R_{min} = 10 \text{ k}\Omega$ | | | | | | | | | | | | | | | |
| Influence effects | | <u> </u> | | | | 2 | | | 100 | d. 0 (|)5 % F | -00/ | lk0 | | | | |
| | | oly: 0.0 | | | | | | | 108 | 10: 0.0 | JO % F | -507 | KC2 | | | | |
| Long term stability | | 0.3 % FS | | | t reter | ence c | ondition | S | | | | | | | | | |
| Response time | | re: ≤ 10 | | | | | | | 3-1 | wire: s | ≤ 3 ms | sec | | | | | |
| ³ accuracy according to IEC 607 | | | | | | | sis, repe | atability) | | _ | _ | | | _ | | _ | _ |
| Thermal effects (Offset an | d Span) / F | Permiss | ible T | empe | eratur | es | | | | | | | | | | | |
| Thermal error | ≤± | 0.2 % FS | SO / 1 | 0 K | | | | | | | | | | | | | |
| in compensated range | -25 | 85 °C | | | | | | | | | | | | | | | |
| Permissible temperatures ⁴ | | lium: -4 | | 25 °C | | electro | nics / e | nvironm | ent: - | 40 | 85 °C | | stora | age: | -40 | 100 ° | С |
| ⁴ for pressure port of PVDF the | | | | | | | | | | | | | | 5. | | | |
| Electrical protection | | poratare | .5 50 | 5 | | | | | | | | | | | | | |
| • | | | | | | | | | | | | | | | | | |
| Short-circuit protection | | nanent | | | | | | | | | | | | | | | |
| Reverse polarity protection | | lamage, | | | | | | | | | | | | | | | |
| Electromagnetic compatibilit | iy emi | ssion an | d imm | unity | accor | ding to | EN 61 | 326 | | | | | | | | | |
| Mechanical stability | | | | | | | | | | | | | | | | | |
| Vibration | 10 c | RMS (2 | 25 2 | 000 | Hz) | accor | ding to | DIN EN | 60068 | 3-2-6 | | | | | | | |
| Shock | | g / 1 ms | | | , | | | DIN EN | | | | | | | | | |
| Materials | | | | | | | 0.13 | | | | | | | | | | |
| | otor | dard: si | lainlaa | o oto | | 404 (21 | | | | | | | | | | | |
| Pressure port | | onal for | | | | | | essure i | range | up to | 60 bai | r: PV | 'DF | | | | |
| | | ers on re | | | P | | le . | | | | | | | | | | |
| Housing | | nless ste | | 404 (| 3161 |) | | | | | | | | | | | |
| Option compact field housing | | nless ste | | | | | nle alan | hrass | nicke | l nlate | d | | | other | s on r | eques | ŀ |
| Seals (media wetted) | | dard: F | | 000 (| 505) 1 | | | EPDM | | | | | | | | eques | |
| Diaphragm | | mic Al ₂ | |)/ | | | options. | | | N - 10 | U Dai) | , NDF | <u>۱</u> | ouner | 5 0111 | eques | L |
| · · · | | | | | | | | | | | | | | | | | |
| Media wetted parts | | sure po | | | apnra | gm | | | | | | | | | | | |
| • | | 0 m A / 2 | | | | 505. | | | | | | | | | | | |
| Explosion protection (only | | | | 068 | | ECEY | | | | | | | | | | | |
| Explosion protection (only Approval | IBE | xU 10 A | | | | | | | | _ | | | | | | | |
| Explosion protection (only | IBE stair | xU 10 A | el pre | | | zone C |): II 10 | Ex ia I | | | | | | | | 85°C [85°C [| |
| Explosion protection (only Approval DX19-DMK 331 | IBE stair plas | xU 10 A nless ste tic press | el pre sure po | ort: z | one 1 | zone C |): 10 20 | Ex ia l Ex ia ll | IC T4 | Ga | | | | | | 85°C [85°C [| |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum | IBE staiı plas U _i = | xU 10 A nless ste tic press 28 V _{DC} , | el pre sure po l _i = 93 | ort: z 8 mA, | one 1 $P_i = 6$ | zone 0 : 60 mV |): II 10 II 20 V, C _i ≈ 0 | Ex ia I Ex ia II nF, L _i ≈ | IC T4 0 μΗ | Ga , | zone | e 21: I | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values | IBE stain plas U _i = the | xU 10 A nless ste tic press 28 V _{DC} , supply c | eel pre sure po l _i = 93 onnec | ort: z 8 mA, tions | one 1 P _i = 6 have | zone 0 : 60 mV an inne |): II 10 II 20 V, C _i ≈ 0 er capa | Ex ia l Ex ia ll nF, L _i ≈ ty of m | IC T4 20 μH ax. 27 | Ga , | zone | e 21: I | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo | r in zc | xU 10 A nless ste tic press 28 V _{DC} , supply c one 0: -2 | eel pre sure po l _i = 93 onnec 20 6 | ort: z 8 mA, tions 60 °C | P _i = 6 have with p | zone 0 : 660 mW an inne o _{atm} 0.8 |): II 10 II 20 V, C _i ≈ 0 er capa | Ex ia l Ex ia ll nF, L _i ≈ ty of m | IC T4 20 μH ax. 27 | Ga , | zone | e 21: I | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment | r in zc in zc | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or | el pre sure po l _i = 93 onnec 20 6 highe | ort: z 3 mA, tions 30 °C r: -20 | one 1 P _i = 6 have with p | zone 0 : 60 mV an inne o _{atm} 0.8) °C |): II 1(II 20 V, C _i ≈ (er capae bar up | Ex ia I Ex ia II nF, L _i ≈ sity of m to 1.1 b | IC T4 = 0 μH ax. 27 ar | Ga , nF to | zone | e 21: I ousin | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables | r in zc cabl | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac | el pre sure po l _i = 93 onnec 20 6 highe itance | ort: z 3 mA, tions 30 °C r: -20 : sigi | nne 1 P _i = 6 have with p 0 70 | zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s | G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line | IC T4 20 μH ax. 27 ar e/signa | Ga ' nF to al line: | zone the he | e 21: I ousin | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) | r in zc cabl | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or | el pre sure po l _i = 93 onnec 20 6 highe itance | ort: z 3 mA, tions 30 °C r: -20 : sigi | nne 1 P _i = 6 have with p 0 70 | zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s | G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line | IC T4 20 μH ax. 27 ar e/signa | Ga ' nF to al line: | zone the he | e 21: I ousin | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous | r in zc cabl | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac | el pre sure po l _i = 93 onnec 20 6 highe itance | ort: z 3 mA, tions 30 °C r: -20 : sigi | nne 1 P _i = 6 have with p 0 70 | zone 0 : 660 mW an inne o _{atm} 0.8) °C e/shield |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s | G Ex ia I G Ex ia II nF, L _i ≈ ity of m to 1.1 ba gnal line | IC T4 20 μH ax. 27 ar e/signa | Ga ' nF to al line: | zone the he | e 21: I ousin | II 2D E | | | | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 | IBE stain plas U _i = the in zc cabl cabl | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct | eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s | ort: z 3 mA, tions 50 °C r: -20 : signal signal | None 1 P _i = 6 have with p 70 nal line l line/s | zone C : 660 mW an inne D _{atm} 0.8 0 °C e/shield a : 61511 |): II 1(II 2C V, C _i ≈ C er capae bar up d also s ilso sigr | E Ex ia I nF, L _i ≈ sity of m to 1.1 b gnal line al line/s | IC T4 ² 0 μH ax. 27 ar e/signa ignal I | Ga , nF to al line: line: 1 | zone the he 160 p µH/m | e 21: l ousin oF/m | g | Ex ia I | | 85°C [| |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 | IBE stain plas U _i = the in zc cabl cabl | xU 10 A nless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct | eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s | ort: z 3 mA, tions 50 °C r: -20 : signal signal | None 1 P _i = 6 have with p 70 nal line l line/s | zone C : 660 mW an inne D _{atm} 0.8 0 °C e/shield a : 61511 |): II 1(II 2C V, C _i ≈ C er capae bar up d also s ilso sigr | E Ex ia I nF, L _i ≈ sity of m to 1.1 b gnal line al line/s | IC T4 ² 0 μH ax. 27 ar e/signa ignal I | Ga , nF to al line: line: 1 | zone the he 160 p µH/m | e 21: l ousin oF/m | g | Ex ia I | | 85°C [| |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 | IBE stain plas U _i = the the in zc in zc cabl cabl | xU 10 A hless ste tic press 28 V _{DC} , supply c one 0: -2 one 1 or e capac e induct | eel pre sure po $I_i = 93$ onnec 20 (highe itance ance:s 0 IEC (bar: (1 bar: () | ort: z 3 mA, tions 50 °C r: -20 : signal 31508 0-ring 5 bal D-ring | P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° | zone C : 660 mW an inne p _{atm} 0.8 0 °C e/shield a c 61511 C 61511 EPDM C and KM Vi 5 |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar | Ex ia I Ex ia II nF, $L_i \approx$ ity of m to 1.1 b gnal line/s ith BAW (90° C) | IC T4 ² 0 μH ax. 27 ar e/signal ignal I I-appro | Ga , nF to al line: 1 line: 1 oval); | zone the he 160 p µH/m | e 21: l ousin oF/m ssible | g 9 • maxi | Ex ia I | Values | 85°C I | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application | IBE stain plas U _i = the in zc in zc cabl cabl cabl cabl for F | xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -: one 1 or e capac e induct ording to $P_N \le 15$ k | eel pre sure po $I_i = 93$ onnec 20 (2 highe itance: ance: 0 IEC (2 par: (2) par: (2) | ort: z 3 mA, tions 50 °C r: -20 : signal 51508 0-ring 0-ring 25 bai 25 bai | P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° J in FK r / 150 | zone C : 660 mW an inne 0 atm 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar | Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a | IC T4 ² 0 µH ax. 27 ar e/signal ignal I I-approvi | Ga , al line: line: 1 oval); al); pe | zone the he 160 p µH/m permis | e 21: l ousin oF/m ssible ible m | g e maxi naximu | Ex ia I mum um va | Values | 85°C I | |
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| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight | IBE stain plas U _i = the in zc in zc cabl cabl cabl cabl | xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -: one 1 or e capac e induct ording to $P_N \le 15$ k | tel presure por $I_i = 93$ onnec 20 6 highe itance ance:s 0 IEC 6 par: 0 20 7 highe itance ance:s 0 IEC 6 par: 0 2 t curre | ort: z 3 mA, tions 50 °C r: -20 : signal 51508 0-ring 0-ring 25 bai 25 bai | P _i = 6 have with p 0 70 nal line l line/s J in 70 r / 60° J in FK r / 150 | zone C : 660 mW an inne O _{atm} 0.8 0 °C e/shield a c 61511 EPDM C and KM Vi 5 0 °C |): II 10 II 20 V, C _i ≈ 0 er capae bar up d also s also sigr 1 281 (w 10 bar | Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a | IC T4 ² 0 µH ax. 27 ar e/signal ignal I I-approvi | Ga , al line: line: 1 oval); al); pe | zone the he 160 p µH/m permis | e 21: l ousin oF/m ssible ible m | g e maxi naximu | Ex ia I mum um va | Values | 85°C I | |
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| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight Installation position Operational life | IBE stain plas U _i = the in z in z cabl cabl cabl cabl cabl for F for F for F sign app any > 10 | xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -; one 1 or e capac e induct ording to $P_N \le 15$ k al outpur rox. 140 | eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s o IEC 6 oar: 0 2 t curre g | prt: z mA, tions 0°C °C r: -20 5 bai 0-ring 25 bai 25 bai ent: r | P _i = 6 have with p 070 nal line line/s in 70 r / 60° in Fk r / 150 nax. 2 | zone C : 360 mV an inne batm 0.8) °C e/shield a c 61511 EPDM C and (M Vi 5)°C 25 mA |): II 10 II 20 V, Ci ≈ 0 er capa bar up d also s also sigr 1 281 (w 10 bar 667 (with | G Ex ia I is Ex ia II nF, Li≈ ity of m to 1.1 b: gnal line/s ith BAM ′ 90° C BAM-a si | IC T4 = 0 µH, ax. 27 ar =/signal I ignal I I-approva gnal o | Ga nF to al line: line: 1 oval); al); pe output | zone the h 160 p H/m permis rmissi | e 21: I ousin oF/m ssible ible m | g e maxi naximi ax. 7 i | mum ma mA | Values a | s are | |
| Explosion protection (only Approval DX19-DMK 331 Safety technical maximum values Permissible temperatures fo environment Connecting cables (by factory) Miscellaneous Option SIL ⁵ 2 Option oxygen application Current consumption Weight Installation position | IBE stain plas U _i = the the in zc cabl cabl cabl cabl cabl cabl cabl cab | xU 10 A hless stetic press 28 V _{DC} , supply c one 0: -; one 1 or e capac e induct ording to $P_N \le 15$ k $P_N \le 25$ k al outpu rox. 140 | eel pre sure po $I_i = 93$ onnec 20 6 highe itance ance:s o IEC 6 oar: 0 2 t curre g | prt: z mA, tions 0°C °C r: -20 5 bai 0-ring 25 bai 0-ring 25 bai 0-ring 25 bai | P _i = 6 have with p 070 nal line line/s in 70 r / 60° in Fk r / 150 nax. 2 | zone C : 360 mV an inne batm 0.8) °C e/shield a c 61511 EPDM C and (M Vi 5)°C 25 mA |): II 10 II 20 V, Ci ≈ 0 er capa bar up d also s also sigr 1 281 (w 10 bar 667 (with | Exia I Exia II nF, Li≈ ity of m to 1.1 bi gnal line/s ith BAM ′90° C BAM-a | IC T4 = 0 µH, ax. 27 ar =/signal I ignal I I-approva gnal o | Ga nF to al line: line: 1 oval); al); pe output | zone the h 160 p H/m permis rmissi | e 21: I ousin oF/m ssible ible m | g e maxi naximi ax. 7 i | mum ma mA | Values a | s are | |

DMK 331 Technical Data



DMK 331 Technical Data



DMK 331 Ordering Code

| DMK 331 | | - | □- | | - 🗌 | - | |]-[| | | - | - 🗌 | -[| - | | | |
|---|----------------|----------------|-------------|----------|-----|--------|-------------------|-----|--------------------------|-----|------------------|-------------|--------|---|--------|-------------|---------|
| Pressure | 2 5 0 2 5 1 | | | | | | | | | | | | | | | | |
| Input [bar] | 2 5 1 | 4 0 0 | 0 | | | | | | | | | | | | | | |
| 0.40 0.60 1.0 | | 6 0 0 | 0 0 1 | | | | | | | | | | | | | | |
| 1.6 2.5 | | 1 6 0 2 5 0 | 1 | | | | | | | | | | | | | | |
| 4.0 | | 4 0 0 | 1 | | | | | | | | | | | | | | |
| 10 16 | | 1 0 0 1 6 0 | 2 | | | | | | | | | | | | | | |
| 25 40 | | 4 0 0 | 2 2 | | | | | | | | | | | | | | |
| 60 100 | | 6 0 0 1 0 0 | 3 | | | | | | | | | | | | | | |
| 160 250 400 | | 2 5 0 | 3 3 3 | | | | | | | | | | | | | | |
| 600 -1 0 | | 6 0 0 | 3 2 | | | | | | | | | | | | | | |
| Output | _ | 9999 | 9 | | | | | | | | | | | | | | consult |
| 4 20 mA / 2-wire 0 20 mA / 3-wire | | | | 1 2 | | | | | | | | | | | | | |
| 0 … 10 V / 3-wire Intrinsic safety 4 … 20 mA / 2-wire | | | | 3 E | | | | | | | | | | | | | |
| SIL2 4 20 mA / 2-wire SIL2 with Intrinsic safety | | | | 1S ES | | | | | | | | | | | | | |
| 4 20 mA / 2-wire customer | | | | 9 | | | | | | | | | | | | | consult |
| Accuracy 0.5 % | | | | | 5 | | | | | | | | | | | | |
| Electrical connection | | | | | 9 | | 0.0 | | | | | | | | | | consult |
| Male and female plug ISO 4400 Male plug Binder series 723 (5-pin) Cable outlet with PVC cable | 1 | | | | | 2 | 0 0 |) | | | | | | | | | |
| Cable outlet with PVC cable Cable outlet with cable Male plug M12x1 (4-pin) / metal | | | | | | T M | A 0 R 0 1 0 |) | | | | | | | | | |
| compact field housing stainless steel 1.4404 (316L) | | | | | | 8 | 5 0 | | | | | | | | | | |
| customer | 2 | | | | | 9 | 99 | 9 | | | | | | | | | consult |
| G1/2" DIN 3852 G1/2" EN 837 | | | | | | | | | 1 0 2 0 | 0 (| | | | | | | |
| G1/4" DIN 3852 G1/4" EN 837 | | | | | | | | | 3 0 4 0 | 0 (| | | | | | | |
| G1/2" DIN 3852 with semi-flush sensor | 3 | | | | | | | | F 0 | | | | | | | | |
| G1/2" DIN 3852 open pressure port 1/2" NPT | | | | | | | | | H 0 N 0 N 4 9 9 | 0 0 | | | | | | | |
| 1/4" NPT customer | _ | _ | | | | | | | N 4 9 9 | 99 | | | | | | | consult |
| Seals FKM EPDM | 4 | | | | | | | | | | 1 | | | | | | |
| NBR | | | | | | | | | | | 1 3 5 9 | | | | | | consult |
| Pressure port Stainless steel 1.4404 (316L) | | | | | | | | | | | 3 | 1 | | | | | |
| PVDF customer | 5 | | | | | | | | | | | 1 B 9 | | | | | consult |
| Diaphragm Ceramics Al ₂ O ₃ 96% | | | | | | | - | - | | - | | | 2 | | | | |
| customer Special version | | | | | | | | | | | | | 2 9 | | | | consult |
| standard oxygen application | 6 | | | | | | | | | | | | | 0 | 0 0 | 0 7 9 | |
| customer | | | | | | | | | | | | | | 9 | 9 | 9 | consult |

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

² metric threads and others on request

 3 possible for nominal pressure ranges $\mathsf{P}_{\mathsf{N}} \leq 25$ bar; absolute pressure ranges on request

 4 possible for nominal pressure range $P_{\rm N}\,{\leq}\,160$ bar

⁵ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar), minimum permissible temperature is -30 °C

 $^{\rm 6}$ oxygen application with FKM-seal up to 25 bar and with EPDM-seal up to 15 bar possible

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

76 INDUSTRIAL PRESSURE TRANSMITTER



DMP 457

Pressure Transmitter for Shipbuilding and Offshore

Stainless Steel Sensor

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- shipping approvals GL (Germanischer Lloyd), DNV (Det Norske Veritas) and CCS (China Classification Society)
- flush pressure port
 G 1/2" from 100 mbar
- excellent thermal behavior

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- welded pressure port

The pressure transmitter DMP 457 has been especially designed for rough conditions occurring especially in shipbuilding and offshore applications. All gaseous and liquid media, which are compatible with stainless steel 1.4404 (316L) respectively can be used.

Sensor element is a piezoresistive stainless steel sensor with high accuracy and excellent long-term stability. In order to meet the special requirements for shipbuilding and offshore applications extensive tests had to be passed to get the Germanischer Lloyd (GL), Det Norske Veritas (DNV) and China Classification Society (CCS) approvals.

Preferred areas of use are



Diesel Engines, Drives Compressors, Pumps Boiler Hydraulic and Pneumatic Control Systems



Fuel and Oil



DMP 457 Technical Data

| Input pressure range ¹ | | | | | | | | | | | |
|---|--|--|--|---|--|--|---|-------------|--------------------------------------|--|------|
| | | | | | | | | | | | |
| Nominal pressure gauge [k | oar] -1 0 | 0.10 | 0.16 | 0.25 | 0.40 | 0.60 | 1 | 1.6 | 2.5 | 4 | 6 |
| Nominal pressure abs. [b | bar] - | 0.10 | 0.16 | 0.25 | 0.40 | 0.60 | 1 | 1.6 | 2.5 | 4 | 6 |
| Level gauge / abs. [mH | ₂ O] - | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 |
| | bar] 5 | 0.5 | 1 | 1 | 2 | 5 | 5 | 10 | 10 | 20 | 40 |
| Burst pressure ≥ [b | oar] 7.5 | 1.5 | 1.5 | 1.5 | 3 | 7.5 | 7.5 | 15 | 15 | 25 | 50 |
| | 40 | 10 | 05 | 40 | 00 | 400 | 100 | 050 | 400 | 00 | 20 |
| | bar] 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 60 | |
| | bar] 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 60 | - |
| Level gauge / abs. [mH | | 160 | 250 | 400 | - | - | - | - | - | | |
| | bar] 40 | 80 | 80 | 105 | 210 | 600 | 600 | 1000 | 1000 | 10 | |
| | bar] 50 | 120 | 120 | 210 | 420 | 1000 | 1000 | 1250 | - | - | • |
| Vacuum resistance | | ar: unlimi ar: on rec | ted vacuu | im resista | ance | | | | | | |
| ¹ from 60 bar: measurement starts w | | | Jucor | | | | | | | | |
| | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | |
| Standard | 2-wire: | | mA / | | | | | | | | |
| Option IS-protection | 2-wire: | 4 20 | mA / | V _S = 10 | 28 V _{DC} | | | | | | |
| Performance | | | | | | | | | | | |
| Accuracy ² | Standar | d: N | Nominal p | ressure < | < 0.4 bar: | $\leq \pm 0.5$ % | 6 FSO | | | | |
| | | | | | : 0.4 bar: | | | | | | |
| | Option: | | | | : 0.4 bar: | ≤±0.25 | % FSO | | | | |
| Permissible load | | | _{in}) / 0.02 A | Δ[| | | | | | | |
| Influence effects | | | SO / 10 V | | | load: | 0.05 % F | SO / kΩ | | | |
| Long term stability | | | /ear by re | ference c | onditions | | | | | | |
| Response time | < 10 ms | | | | | | | | | | |
| ² accuracy according to IEC 60770 - | | | | | is, repeatab | ility) | | | | | |
| Thermal effects (Offset and S | ipan) / Permi | ssible te | mperatur | es | | | | | | | |
| | oar] | -1 | . 0 | | | < 0.4 | | | ≥ | 0.40 | |
| Tolerance band [% FS | SO] | ≤ ± 0 | .75 | | | ≤±1 | | | ≤∃ | ± 0.75 | |
| | °C] | -20 | | | | 0 70 | | | |) 85 | |
| Permissible temperatures | medium | : -40 12 | 25°C | elect | ronics / er | nvironmer | nt: -40 | 85°C | storage | : -40 10 | 0°C |
| Electrical protection | | | | | | | | | | | |
| Short-circuit protection | perman | | | | | | | | | | |
| Reverse polarity protection | no dama | age, but a | llso no fur | nction | | | | | | | |
| Electromagnetic | | | nunity acc | ording to | | | | | | | |
| compatibility | | V 61326 | | | | | | | | | |
| | | | ner Lloyd | | | | | | | | |
| | - De | et Norske | Veritas (I | JNV) | | | | | | | |
| Mechanical stability | | | | | | | | | | | |
| Vibration | 4 g (acc | ordina to | | | | | | | | | |
| Materials | | J | GL: CUIVE | e 2 / acco | rding to D | NV: Class | s B / basis | s: IEC 600 | 68-2-6) | | |
| | | 0 | | | rding to D | NV: Class | s B / basis | s: IEC 600 | 68-2-6) | | |
| Pressure port | stainles | 0 | GL: curve | | rding to D | NV: Class | s B / basis | s: IEC 600 | 068-2-6) | | |
| Pressure port | standard | s steel 1.4 | 1404 (316 sta | L) inless ste | eel 1.4404 | (316L) | | | 068-2-6) | | |
| Pressure port | standard | s steel 1.4 | 1404 (316 sta | L) inless ste | | (316L) | | |)68-2-6) | | |
| | standard option fi | s steel 1.4 d: eld housin for cable | 1404 (316 sta ng: sta outlet | L) inless ste | eel 1.4404 eel 1.4404 | (316L) | vith cable | gland | rmissible | temperati | ures |
| Pressure port Housing | standard option fi | s steel 1.4 d: eld housin for cable PVC - c | 1404 (316 sta ng: sta outlet able | L) inless ste | eel 1.4404 eel 1.4404 for subm | (316L) (316L), v nersible ve | vith cable ersion | gland | rmissible -5 | .70 °C | ures |
| Pressure port Housing | standard option fi | s steel 1.4 d: eld housin for cable | 1404 (316 sta ng: sta outlet able | L) inless ste | eel 1.4404 eel 1.4404 for subm PUR - | (316L) (316L), v hersible ve | vith cable ersion ible | gland | rmissible -5 -25 | .70 °C .70 °C | ures |
| Pressure port Housing | standard option fi | s steel 1.4 d: eld housin for cable PVC - c | 1404 (316 sta ng: sta outlet able | L) inless ste | eel 1.4404 eel 1.4404 for subm PUR - FEP - | (316L) (316L), v ersible ve - probe ca probe ca | vith cable ersion ible ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C | ures |
| Pressure port Housing Cable sheath | standard option fi | s steel 1.4 d: eld housin for cable PVC - c PUR - c | 1404 (316 sta ng: sta outlet able able | L) inless ste | eel 1.4404 eel 1.4404 for subm PUR - FEP - | (316L) (316L), v hersible ve | vith cable ersion ible ble | gland | rmissible -5 -25 -25 | .70 °C .70 °C | ures |
| Pressure port Housing Cable sheath | standard option fi | s steel 1.4 d: eld housin for cable PVC - c PUR - c | 1404 (316 sta ng: sta outlet able able FK | L) inless ste inless ste | eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ible ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) | standard option fi | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: | 1404 (316 sta ng: sta outlet able able FK NB | L) inless ste inless ste M SR, welde | eel 1.4404 eel 1.4404 for subm PUR - FEP - | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ible ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm | standard option fi standard option: stainless | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 | 1404 (316 sta ng: sta outlet able able FK NB 1435 (316 | L) inless ste inless ste M R, welde L) | eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ible ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Geals (media wetted) Diaphragm Media wetted parts | standard option fi standard option: stainless pressurd | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea | 1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi | L) inless ste inless ste M iR, welde L) ragm | eel 1.4404 for subm PUR - FEP - TPE - d version ³ | (316L) (316L), v ersible ve probe ca probe ca | vith cable ersion ible ble ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ? welded version only with pressure | standard option fi standard option: stainless pressurd | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea | 1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi | L) inless ste inless ste M iR, welde L) ragm | eel 1.4404 for subm PUR - FEP - TPE - d version ³ | (316L) (316L), v ersible ve probe ca probe ca | vith cable ersion ible ble ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ² welded version only with pressure S-protection | standard option fi standard option: stainless pressure ports according | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 port, sea g to EN 83 | 1404 (316 sta ng: sta outlet able FK NB 1435 (316 als, diaph 7; possible | L) inless ste inless ste M R, welde L) ragm for nomina | eel 1.4404 for subm PUR - FEP - TPE - d version ³ | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ible ble ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals | standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 | 1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB | L) inless ste inless ste BR, welde L) for nomina IECEx I T4 Ga | eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ible ble ble | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals | standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20 | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11 | I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible I068 X / G Ex ia IIB D Ex ia III0 | L) inless ste inless ste M R, welde L) ragm for nomina IECEx I T4 Ga C T 85°C | eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da | (316L) (316L), v ersible ve probe ca probe ca probe ca | vith cable ersion ble ble ≤ 40 bar | gland | rmissible -5 -25 -25 | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals DX 19-DMP 457 | standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20 Ui = 28 | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11 V, I _i = 93 1 | 1404 (316 sta ng: sta outlet able able FK NB 1435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB D Ex ia III D Ex ia III D Ex ia III D Ex ia III | L) inless ste inless ste M R, welde L) ragm for nomina for nomina T4 Ga C T 85°C 560 mW, 0 | eel 1.4404 eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure | (316L) (316L), v ersible ve probe ca probe ca probe ca ranges P_N 27X F, L _i = 5 p | vith cable ersion ble ble ≤ 40 bar | gland pe | rmissible -5 -25 -25 oth | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing Cable sheath Seals (media wetted) Diaphragm Media wetted parts ³ welded version only with pressure IS-protection Approvals DX 19-DMP 457 Safety technical maximum valu Permissible temperatures for | standard option fi standard option: stainless pressure ports according IBExU 1 zone 0: zone 20 es U _i = 28 V the supp in zone | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 II 10 : II 11 V, I _i = 93 1 oly conner 0: | I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible 1068 X / B Ex ia IIB D Ex ia IIB D Ex ia IIIC mA, P _i = 6 ctions hav | L) inless ste inless ste M R, welde L) ragm for nomina for nomina for nomina for nomina for nomina for nomina for nomina for nomina | eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da C _i = 105 n er capacity 0 °C bei p | (316L) (316L), v probe ca probe ca p | vith cable ersion ble ble ≤ 40 bar ≅ 40 bar | gland pe | rmissible -5 -25 -25 oth | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |
| Pressure port Housing | standard option fi stainless pressure ports according IBExU 1 zone 0: zone 20 es U _i = 28 the supp in zone in zone | s steel 1.4 d: eld housin for cable PVC - c PUR - c d: s steel 1.4 e port, sea g to EN 83 0 ATEX II 10 : II 11 V, I _i = 93 n oly conned | I404 (316 sta ng: sta outlet able able FK NB I435 (316 als, diaphi 7; possible I068 X / B Ex ia IIB D Ex ia IIB D Ex ia IIIC mA, P _i = 6 ctions hav | L) inless ste inless ste R, welde L) ragm for nomina for nomina for nomina for nomina for nomina for nomina for nomina for nomina | eel 1.4404 for subm PUR - FEP - TPE - d version ³ al pressure IBE 12.00 Da C _i = 105 n er capacity 0 °C bei p | (316L) (316L), v ersible ve probe ca probe ca probe ca probe ca f f f f f f f f f f | vith cable ersion ble ble ≤ 40 bar ≤ 40 bar uH, 140 nF to r bis 1.1 b | gland pe | rmissible -5 -25 -25 oth | 70 °C . 70 °C . 70 °C . 70 °C . 125 °C | |

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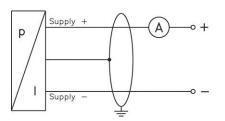
| Miscellaneous | |
|-----------------------|--|
| Current consumption | max. 25 mA |
| Weight | approx. 140 g (with ISO 4400) |
| Installation position | any ⁴ |
| Operational life | > 100 x 10 ⁶ pressure cycles |
| CE-confomity | EMC Directive: 2004/108/EC |
| CE-conionity | Pressure Equipment Directive: 97/23/EC (module A) ⁵ |
| ATEX Directive | 94/9/EC |
| 4 | |

Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation

- there can be slight deviations in the zero point for pressure ranges $P_N \le 1$ bar. ⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar

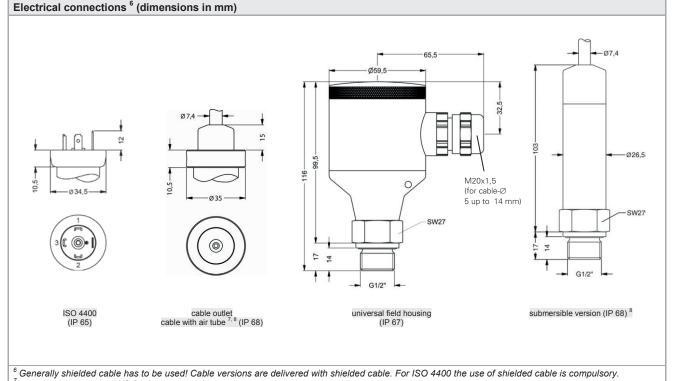
Wiring diagram





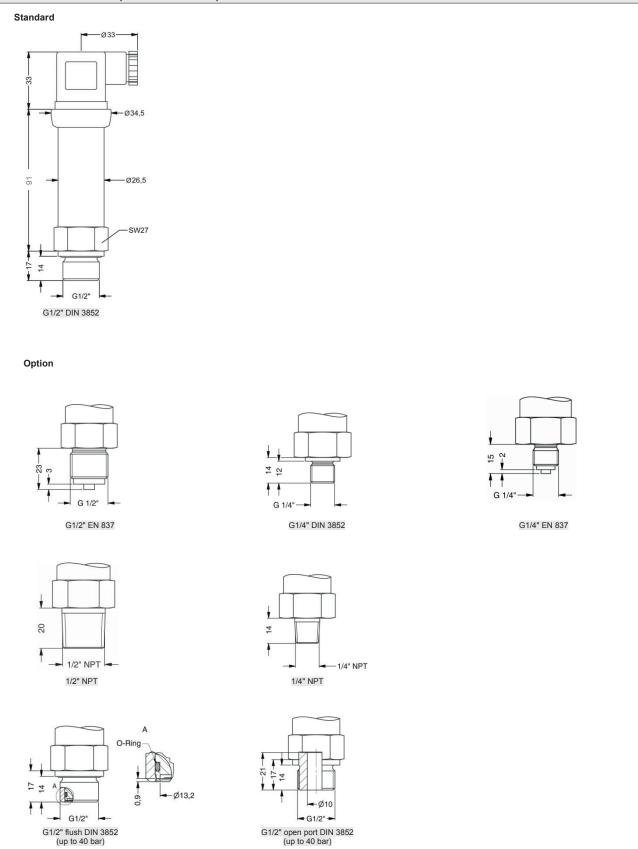
Pin configuration

| Electrical connection | ISO 4400 | field housing | cable colours (DIN 47100) |
|-----------------------|------------|---------------|---------------------------|
| Supply + | 1 | IN + | wh (white) |
| Supply – | 2 | IN – | bn (brown) |
| Shield | ground pin | | ye/gn (yellow / green) |
| 0 | | | |



⁷ tested at 4 bar or 40 mH₂O for 24 hours ⁸ different cable types and lengths available,permissible temperature depends on kind of cable, see cable connection

Mechanical connection (dimensions in mm)



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| DMP 457 | | | | |
|--|--------------------|--|-------------|---------|
| Pressure in bar, gauge ¹ | 6 0 0 | | | |
| in bar, absolute | 6 0 1 | | | |
| in mH ₂ O, gauge ¹ in mH ₂ O, absolute | 6 0 2 6 0 3 | | | |
| Input [mH₂O] [bar] | | | | |
| 1 0.1 1.6 0.16 | 1 0 0 0 1 6 0 0 | | | |
| 2.5 0.25 | 2 5 0 0 | | | |
| 4 0.4 6 0.6 | 4 0 0 0 6 0 0 0 | | | |
| 10 1 | 1 0 0 1 | | | |
| 16 1.6 25 2.5 | 1 6 0 1 2 5 0 1 | | | |
| 40 4 | 4 0 0 1 | | | |
| 60 6 100 10 | 6 0 0 1 1 0 0 2 | | | |
| 160 16 | 1 6 0 2 | | | |
| 250 25 400 40 | 2 5 0 2 4 0 0 2 | | | |
| 60 | 6 0 0 2 | | | |
| 100 160 | 1 0 0 3 1 6 0 3 | | | |
| 250 | 2 5 0 3 | | | |
| 400 600 | 4 0 0 3 6 0 0 3 | | | |
| -1 0 | X 1 0 2 | | | |
| Output | 9 9 9 9 | | | consult |
| 4 20 mA / 2-wire | 1 | | | |
| Intrinsic safety 4 20 mA / 2-wire customer | E 9 | | | consult |
| Accuracy | | | | |
| standard for $P_N \ge 0.4$ bar0.35 %standard for $P_N < 0.4$ bar0.50 % | | 3 5 | | |
| option for $P_N \ge 0.4$ bar 0.25 % | | 2 | | |
| Customer Electrical connection | | 9 | | consult |
| Male and female plug ISO 4400 ² | | G 1 0 | | |
| (for cable Ø 46 mm) Male and female plug ISO 4400 GL ^{2,} | 3 | | | |
| (for cable Ø 1014 mm) | | G 0 0 | | |
| Male and female plug ISO 4400 GL ^{2,} (for cable Ø 4,511 mm) | | G 0 1 | | |
| Cable outlet ² , | 4 | T R 0 | | |
| Field housing stainless steel Submersible version (1.4404 / 316L) | | 8 8 0 | | |
| with PUR cable ^{2,} | 4 | T T 1 | | |
| Customer Mechanical connection | | 9 9 9 | | consult |
| G1/2" DIN 3852 | | $ \begin{array}{cccc} 1 & 0 & 0 \\ 2 & 0 & 0 \\ 3 & 0 & 0 \\ 4 & 0 & 0 \end{array} $ | | |
| G1/2" EN 837 G1/4" DIN 3852 | | 200 | | |
| G1/4" EN 837 | | 4 0 0 | | |
| G 1/2" DIN 3852 with 5 flush sensor | | F 0 0 | | |
| G1/2" DIN 3852 open pressure port 5 | | H 0 0 | | |
| 1/2" NPT 1/4" NPT | | N 0 0 N 4 0 | | |
| customer | | N 4 0 9 9 9 | | consult |
| Seals FKM | | | 1 | |
| NBR | | | 5 | |
| without (welded version) ⁶ customer | | | 2 9 | consult |
| Special version | | | | |
| standard customer | | | 0 0 0 9 9 9 | consult |
| | | | - 1 - 1 - 1 | |

¹ from 60 bar: measurement starts with ambient pressure

² Shielded cable has to be used! Cable versions are delivered with shielded cable.

³ female plug is GL-approbated

⁴ different cable types and lengths deliverable

⁶ welded version only with pressure ports according to EN 837; possible with pressure ranges $P_N \le 40$ bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

INDUSTRIAL PRESSURE TRANSMITTER



DMK 458

Pressure Transmitter for Marine and Offshore

Ceramic Sensor

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signals

2-wire: 4 ... 20 mA Others on request

Product characteristics

- GL-shipping approval (Germanischer Lloyd)
- DVN-certificate (Det Norske Veritas)
- CCS-certificate (China Classification Society)
- high overpressure resistance
- excellent long term stability

Optionale Ausführungen

- IS-version
 Ex ia= intrinsically safe for gases and dusts
- ▶ diaphragm Al₂O₃ 99.9 %
- pressure port CuNiFe

The pressure transmitter DMK 458 has been developed for marine and offshore applications. In addition to thread connections, different flush versions are available, which are especially suitable for pasty, viscous, and polluted media.

Due to the capacitive ceramic sensor developed by BD|SENSORS, which is optionally available in Al_2O_3 99.9 %, the DMK 458 shows an outstanding accuracy as well as a high overload and temperature resistance.

Preferred areas of use are



Monitoring of pressure during loading and unloading processes



Monitoring of a ship's position and draught

Use in anti-heeling systems



Level measurement in ballast and storage tanks



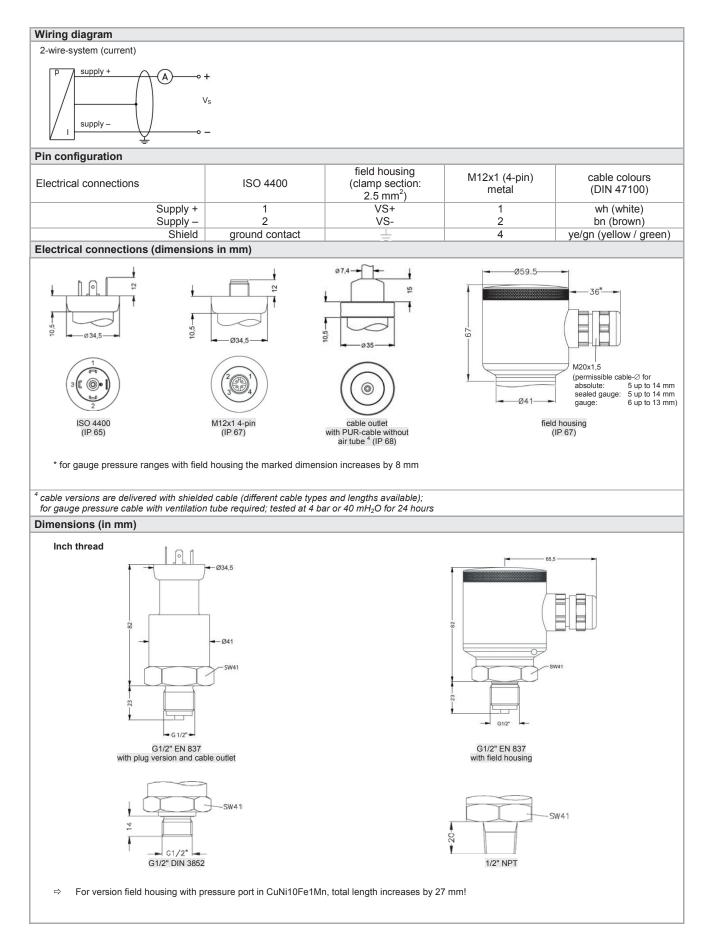




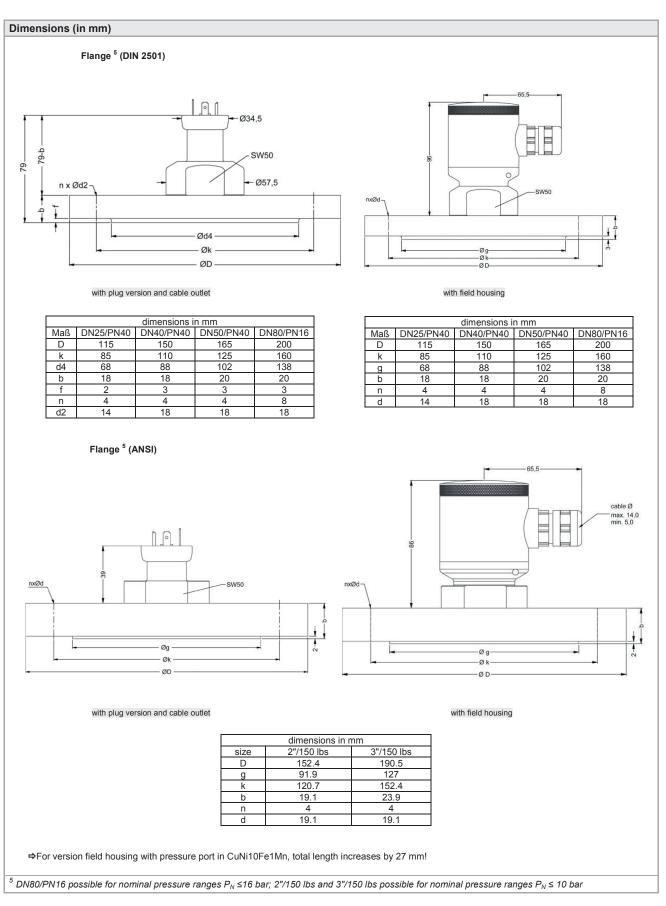


| Pressure ranges | | | | | | | | | | | | | | | | |
|--|---------------------|--------------------------------------|--|---|------------------------|-----------------------|------------|----------------------|--------------------|----------------------|---------------|----------|---------|--------|---------|-----|
| Nominal pressure 1 | [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 |
| Permissible vacuum | [bar] | -0 | .2 | - | 0.3 | | _(| 5 | | | | | -1 | | | |
| ¹ available in gauge, sealed ga | auge and a | absolute | ; nomir | nal pre | essure ra | anges se | ealed g | auge and | l absolu | te from | 1 bar | | | | | |
| | | | | | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | | |
| Standard | | 2-wir | 'e' 4 | 20 n | nA/Vs | = 9 | 32 Vpc | | | V _{S rated} | = 24 V | | | | | |
| Option IS-version | | | | | nA/Vs | | | | | V _{S rated} | | | | | | |
| Performance | | | | | | | 0 . [| | | • 3 Taleu | | DC | | | | |
| Accuracy ² | | stand | lard: | | | < + | 0.25 | % FSO | | | | | | | | |
| Accuracy | | | | ⊃ _N ≥ (| 0.6 bar | | | | | | | | | | | |
| Permissible load | | - | | | _{min}) / 0.0 | | | | | | | | | | | |
| Long term stability | | | .1 % F | | | 02 A] 3 | 2 | | | | | | | | | |
| Influence effects | | supp | | | 5 % FS | (10) | V | | | | | | | | | |
| | | load: | - | | 5 % FS | | | | | | | | | | | |
| Turn-on time | | 700 r | | 0.0 | J /01C | JO / KS2 | 2 | | | | | | | | | |
| Mean response time | | |) msec | <u>,</u> | | | | | | moon | m00011 | rina rot | 0 5/000 | | | |
| Max. response time | | 380 r | | , | | | | | | mean | neasu | ring rat | e b/set | , | | |
| accuracy according to IEC 60 | 0770 // | | | ont / | on line | with a hard | torcai- | ronacta | bility () | | | | | | | |
| ² accuracy according to IEC 60 ³ Under the influence of disturb ³ Under the influence of disturb | bance hurs | it point à | aujustm dina to | EN 6 | 1001-110ea | 1119, NYS 1 (2004) | 2 kV a | curacy | ullity) lecreas | es on < . | + 0 25 % | ESO | | | | |
| Thermal effects | | | ang to | _,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | (2004) | - nv at | iouracy t | | 00 011 - 2 | - 0.20 / | , 100. | | | | |
| Thermal error | | < + 0 | .1 % F | SO / | 10 K | in | romno | nsated | rance | -20 | 20 °C | | _ | | | _ |
| Permissible temperature | | 1210 | . 1 /0 1 | 307 | TUR | | Joinpe | IISaleu | lange · | -20 0 | | | | | | |
| • | .5 | medi | | | | | 40 1 | 25 °C | | | | | | | | |
| Permissible temperatures | | | | 1000 | ironme | | 40 1 25 | | | | | | | | | |
| | | stora | | / env | IIOIIIIe | | 20 40 1 | | | | | | | | | |
| Electrical protection | | 31014 | ye. | | | | +0 | 00 0 | | | | | | | | |
| | | norm | anont | | | | | | | | | | | | | |
| Short-circuit protection | _ | | anent | | | fun ati | | | | | | | | | | |
| Reverse polarity protection | | | | | also no | | | | 20 | | a se la ala a | | | | | |
| Electromagnetic compatib | ility | emis | sion ai | | munity | accord | ling to | EN 613 | 26 and | Germa | anische | er Lloyc | I (GL) | | | |
| Mechanical stability | | 4 (| | | 01 | | | DINE | | | | | | | | |
| Vibration | | 4 g (a | accord | ing to | GL: C | urve 2 | basis | : DIN EI | N 6006 | 08-2-6) | | | | | | |
| Materials | | | | | | | | | | | | | | | | |
| Pressure port | | | | | ess stee | | | | | | | | | | | |
| | | | | | | | is: Cur | vi10Fe1 | IVIn - o | n reque | est | | | | | |
| Housing | | stain | less st | eel 1 | .4404 (| 316 L) | | | | | | | | | | |
| Cable sheath | | PUR | | | | | | | | | | | | | | |
| for version cable outlet | | | | | | | | | | | | | | | | |
| Cable gland | | | | | | | | l plated | | , | | | | | | |
| for version field housing | | | | amic | le (with | integra | ated pr | essure | referer | nce) | | | | ers on | | |
| Seals (media wetted) | | FKM | | | | | | | | | | | oth | ers on | request | t |
| Diaphragm | | stanc | | | nics Al | | | | | | | | | | | |
| | | optio | | | nics Al | | | | | | | | | | | |
| Media wetted parts | | press | sure po | ort, se | eals, dia | aphrag | m | | | | | | | | | |
| IS protection | | | | | | | | | | | | | | | | |
| Approval DX14A-DMK 458 | 3 | | | | 1180 > | < | | | | | | | | | | |
| | | | housin | | | | | ne 0: II 1 | | | | | | | | |
| | | - | | | | | | ne 0: II 1 | IG Ex i | a IIB T | 4 | | | | | |
| Safety technical | | | | | mA; P | = 660 | | | | | | | | _ | | |
| maximum values | | | housin | | | | | = 52.3 n | | | | | | | | |
| | | | | W12x | | | | = 105 nl | | | | opposit | e GND | | | |
| | for | | ne 0: | | | | | h p _{atm} 0 | .8 bar | up to 1 | 1 bar | | | | | |
| | | zone | 1 and | high | er: -2 | 5 70 | °C | | | | | | | | | |
| environment | , | | | ` | | | | | | | | | | | | |
| Permissible temperatures environment Permissible temperatures | for | -40 | . 85 °C | <i>,</i> | | | | | | | | | | _ | _ | |
| environment Permissible temperatures medium | for | -40 | . 85 °C | , | | _ | _ | _ | | | | | | | | |
| environment Permissible temperatures medium Miscellaneous | for | | | | | | | | | | | | | | | |
| environment Permissible temperatures medium Miscellaneous Ingress protection | for | | . 85 °(, IP 67 | | 8 | | | | | | | | | | | |
| environment Permissible temperatures medium Miscellaneous Ingress protection Installation position | for | IP65 any | , IP 67 | , IP6 | 8 | | | | | | | | | | | |
| environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption | for | IP65 any max. | , IP 67 21 m/ | , IP6 | | | | | | | | | | | | |
| environment Permissible temperatures medium | for | IP65 any max. | , IP 67 21 m/ | , IP6 | | on hou | sing a | nd mech | nanical | conne | ction) | | | | | |
| environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption | for | IP65 any max. min. | , IP 67 21 m/ | , IP68 A (depe | ending | on hou | sing a | nd mech | nanical | conne | ction) | | | | | |
| environment Permissible temperatures medium Miscellaneous Ingress protection Installation position Current consumption Weight | for | IP65 any max. min. > 100 | , IP 67 21 m/ 400 g) x 10 ⁶ | , IP6 | ending | | sing a | nd mech | nanical | conne | ction) | | | | | |

DMK 458 Technical Data



DMK 458 Technical Data



DMK 458 Ordering Code

| DMK 458 | |]-[]-[]-[]]] |
|---|---|------------------------|
| Pressure | | |
| in bar, gauge in bar, absolute ¹ | 5 9 A 5 9 B | |
| in bar, sealed gauge ¹ | 5 9 E | consult |
| in mH ₂ O, gauge | 5 9 C | |
| in mH ₂ O, absolute ¹ | 5 9 D | consult |
| in mH ₂ O, sealed gauge ¹ Input [mH ₂ O] [bar] | 5 9 F | consult |
| 0.4 0.04 | 0 4 0 0 | |
| 0.6 0.06 | 0 6 0 0 | |
| 1.0 0.1 | | |
| 1.6 0.16 2.5 0.25 | 1 6 0 0 2 5 0 0 | |
| 4.0 0.40 | | |
| 6.0 0.60 | | |
| 10 1.0 | 1 0 0 1 | |
| 16 1.6 | 1 6 0 1 | |
| 25 2.5 40 4.0 | 2 5 0 1 4 0 0 1 | |
| 40 4.0 60 6.0 | | |
| 100 10 | 1 0 0 2 | |
| 160 16 | 1 6 0 2 | |
| 200 20 | 2 0 0 2 | |
| Output | 9999 | consult |
| 4 20 mA / 2-wire | 1 | |
| Intrinsic safety 4 20 mA / 2-wire | E | |
| Accuracy | 9 | consult |
| standard: 0.25% | 2 | |
| option for $P_n > 0.6$ bar: 0.1% | 1 | |
| customer | 9 | consult |
| Electrical connection Male and female plug ISO 4400 ² | | |
| (for cable Ø 4 6 mm) | G 1 0 | |
| Male and female plug ISO 4400 GL ² | GOO | |
| (for cable Ø 10 … 14 mm) Male and female plug ISO 4400 GL ² | | |
| (for cable Ø 4.5 11 mm) | G 0 1 | |
| Male plug M12x1 (4-pin) / | M 1 0 | |
| metal version | | |
| Cable outlet with PUR-cable (with ventilation tube) | T R 1 | |
| Field housing, absolute, sealed gauge | 8 8 0 | |
| customer | 9 9 9 | consult |
| Mechanical connection | | |
| G 1/2" DIN 3852 G 1/2" EN 837 | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | |
| 1/2" NPT | | |
| Flange DN 25 / PN 40 (DIN 2501) | F 2 0 | |
| Flange DN 40 / PN 40 (DIN 2501) | N 0 0 F 2 0 F 2 2 F 2 3 | |
| Flange DN 50 / PN 40 (DIN 2501) | F 2 3 | |
| Flange DN 80 / PN 16 (DIN 2501) ³ Flange DN 2" / 150 lbs (ANSI B 16.5) | F 1 4 F 3 2 | |
| Flange DN 3" / 150 lbs (ANSI B 16.5) | F 3 3 | |
| customer | F 3 3 9 9 9 | consult |
| Seals | | 1 |
| FKM andere | | 1 consult |
| Pressure port | | |
| Stainless steel 1.4404 (316L) | | 8 |
| Copper-Nickel-alloy (CuNi10Fe1Mn) ⁴ | | K consult |
| Customer Diaphragm | | 9 consult |
| Ceramics Al ₂ O ₃ 96% | | 2 |
| Ceramics Al ₂ O ₃ 99.9% | | C |
| customer | | 9 consult |
| Special version standard | | 0.0.0 |
| customer | | 0 0 0 9 9 9 consult |
| ¹ nominal pressure ranges absolute and sealed gauge fro | 1 har | |

¹ nominal pressure ranges absolute and sealed gauge from 1 bar

² female plug is GL-approbated

 3 DN80/PN16 possible for nominal pressure ranges PN ≤ 16 bar; 2"/150 lbs and 3"/150 lbs possible for nominal pressure ranges PN≤ 10 bar

⁴ CuNi10Fe1Mn only possible in combination with inch thread

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

INDUSTRIAL PRESSURE TRANSMITTER



DMK 457

Pressure Transmitter for Shipbuilding and Offshore

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA others on request

Special characteristics

- shipping approvals GL (Germanischer Lloyd), DNV (Det Norske Veritas) and CCS (China Classification Society)
- pressure port CuNiFe (sea water resistant)
- oxygen application

Optional versions

IS-version Ex ia = intrinsically safe for gases and dusts

The pressure transmitter DMK 457 with ceramic sensor has been designed for typical applications in shipbuilding and offshore constructions as alternative to our pressure transmitter DMP 457 with piezoresistive stainless steel sensor.

In combination with the copper-nickel-alloy the DMK 457 is suitable for seawater, e.g. level measurement in ballast tanks, etc.

The DMK 457 is approved by Germanischer Lloyd (GL), Det Norske Veritas (DNV) and China Classification Society (CCS).

Preferred areas of use are

Drives Compressors



Boiler Pneumatic Control Systems **Oxygen Applications**



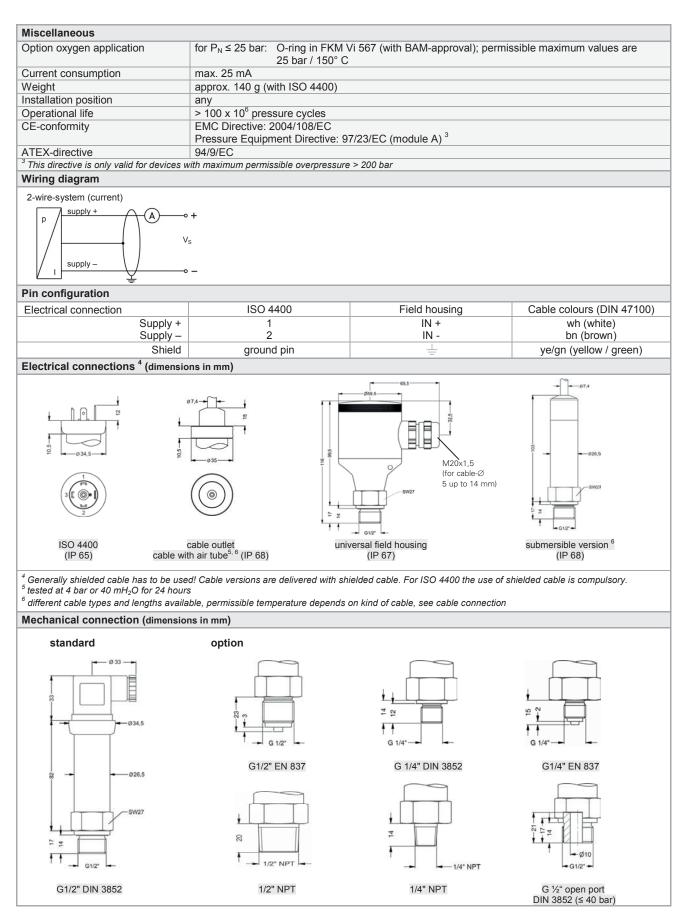
Fuel and Oil



Water and Sea Water



| Input pressure range | | | | | | | | | | | | | | | | | | | |
|---|---------------------|---|---|--|--|---|---|---|--|-------------------------------------|--|--------------------------|---------|---------|-----------|----------|----------|--------|-----|
| Nominal pressure gauge | [bar] | -1 0 | 04 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 |
| Nominal pressure abs. | [bar] | - | - | 0.6 | 1 | | 2.5 | | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 | 600 |
| Level gauge / abs. | [mH ₂ O] | - | - | 6 | 10 | 16 | 25 | | 60 | 100 | | 250 | | | - | - | - | - | - |
| Overpressure | [bar] | | 1 | 2 | 2 | 4 | 4 | 10 | 10 | 20 | 40 | 40 | 100 | 100 | 200 | 400 | 400 | 600 | 80 |
| Burst pressure ≥ | [bar] | 7 | 2 | 4 | 4 | 5 | 5 | 12 | 12 | 25 | 50 | 50 | 120 | 120 | 250 | | | 650 | 88 |
| Vacuum resistance | | P _N ≥ 1 | bar: u | Inlimit | ed va | acuur | | istan | ce | | 1 | 1 | | | | | | | |
| | | P _N < 1 | | | | | | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | | | | | |
| Standard | | 2-wire: | · | 1 20 |) mA | / Vo | = 8 | 32 | Vee | | | | | | | | | | |
| Option IS-protection | | 2-wire: | | 1 20 | | | | | | | | | | | | | | | |
| · · | | 2-0010 | | τ <i>Ζ</i> ι | | /vs | - 10 | 20 | V DC | | | | | | | | | | |
| Performance | | | | | / | | | | | | | | | | | | | | |
| Accuracy ¹ | | IEC 60 | | | | | | | | | | | | | | | | | |
| Permissible load | | R _{max} = | | | | | | | | | | | | | | | | | |
| Influence effects | | supply | | | | | V | | | | | | | | | | | | |
| | | load: | | 05 % | FSO | / KΩ | | | | | | | | | | | | | |
| Response time | 770 // | < 10 m | | | | | h | | | 4 - 1- : ! : 4 | .) | | | | | | | | |
| ¹ accuracy according to IEC 60 | | | | | | | | resis, | repea | itability | /) | | | | | | | | |
| Thermal effects (Offset an | nd Span | , | | | • | ature | es | | | | | | | | | | | | |
| Thermal error | | ≤ ± 0.2 in com | | | | : -25 | 85 | °C | | | | | | | | | | | |
| Permissible temperatures | | mediu | | | | | | 12 | 25 °C | | | | | | | | | | |
| | | electro | nics | / envi | ronm | ent: | | 8 | | | | | | | | | | | |
| | | storag | e: | | | | -40 | 10 | 0° 00 | | | | | | | | | | |
| Electrical protection | | | | | | | | | | | | | | | | | | | |
| Short-circuit protection | | perma | nent | | | | | | | | | | | | | | | | |
| Reverse polarity protection | | no dan | | but a | also r | no fur | oction | | | | | | | | | | | | |
| Electromagnetic compatibil | | emissi | | | | | | | | | | | | | | | | | |
| | -9 | | N 61 | | | , | | 0 | | | | | | | | | | | |
| | | - 0 | Germa | anisch | ner Ll | oyd (| GL) | | | | | | | | | | | | |
| | | - C | et No | orske | Verit | as (D | NV) | | | | | | | | | | | | |
| Mechanical stability | | | | | 0 | | • <i>i</i> | | | | | | | | | | | | |
| Vibration | | 4 g (ac | cordi | ng to | GL: | curve | 2/a | ccorc | ling to | 0 DN | V: Clas | SS B / | basis | E IEC 6 | 50068 | -2-6) | | | |
| Materials | | | | | | | | | | | | | | | | | | | |
| Pressure port | | Standa | | | | | | | | 04 (3 | | | | | | | | | |
| | | option | -: | | | | | | | | er resi | | | | | | | | |
| | | | | | | | | | | | 352, G EN 837 | | | | | | | | |
| | | | | | | | uNi1 | | | 1/4 C | | | | | VILLI LIC | Jusing | | | |
| Housing | | standa | urd: | | | | | | | 04 (3 | 161.) | | | | | | | | |
| riousing | | option | | | | | | | | | er resi | stant) | - in co | mhin | ation v | with nr | essur | þ | |
| | | option | • | | | | in C | | | | 51 1001 | stanty | | | | nur pi | oooun | • | |
| | | option | field | housi | na: | stai | nless | stee | 1.44 | 104 (3 | 816L); | with c | able c | aland | | | | | |
| Cable sheath | | | | ble ou | | | | | | | le vers | | | | ermiss | sible te | emper | atures | ; |
| | | | | - cab | | | | | | - | | | | | | -5 7 | <u> </u> | | |
| | | | PUR | - cab | le | | | | | | e cable | | | | -2 | 25 ` | 70 °C | | |
| | | | | | | | | | | | e cable | | | | -2 | 25 ` | 70 °C | | |
| | | | | | | | | Т | PE - | probe | e cable | Э | | | -2 | 25 1 | 25 °C | ; | |
| | | | | | | FKN | Л | | | | | | | | | | | | |
| Seals (media wetted) | | standa | | | | | | KN1 (1 | - nlv f | | | | | | | | | | |
| Seals (media wetted) | | option | | | | NB | х, гг | | July 1 | or P _N | ≤ 100 | bar) | | | | | | | |
| | | option: others | on re | | | NBI | х, гг | | JIIIY I | or P _N | ≤ 100 | bar) | | | | | | | |
| Diaphragm | | option: others ceram | on re | O₃ 96 | % | | | | | or P _N | ≤ 100 | bar) | | | | | | | |
| Diaphragm Media wetted parts | | option: others | on re | O₃ 96 | % | | | | | or P _N | ≤ 100 | bar) | | | | | | | |
| Diaphragm Media wetted parts ² IS-version on request | 20 | option: others ceram pressu | on re ic Al ₂ ire po | O₃ 96 | % | | | | | or P _N | ≤ 100 | bar) | | | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 | 20 m/ | option: others ceram pressu | on re ic Al ₂ ire po e) | O₃ 96 ort, se | % als, c | liaphi | agm | | | | | bar) | | | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals | 20 m/ | option: others ceram pressu A / 2-wir IBExU | on re ic Al ₂ ire po e) 10 A | O ₃ 96 ort, se | % als, c 1068 | liaphi | ragm IEC | Ex IE | | | | bar) | | | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals | 20 m/ | option: others ceram pressu A / 2-win IBExU zone 0 | on re ic Al ₂ ire po e) 10 A | 0 ₃ 96 ort, se TEX II 1G | % als, c 1068 Ex ia | liaphi X / IIB T | agm IEC 4 Ga | Ex IE | | | | bar) | | | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals | 20 m/ | option: others ceram pressu A / 2-win IBExU zone 0 zone 2 | on re ic Al ₂ ire po e) 10 A | O ₃ 96 ort, se TEX II 1G II 1D I | % als, c 1068 Ex ia Ex ia | liaphi X / IIB T IIIC | гадт IEC ⁻ 4 Gа Г 85°(| Ex IE | BE 12 | 2.0027 | 7X | | | | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457 | | option: others ceram pressu A / 2-win IBExU zone 0 zone 2 U _i = 28 | on re ic Al ₂ ire po e) 10 A : 20: 1 3 V, I _i | 0 ₃ 96 ort, se TEX II 1G II 1D I = 93 | % als, c 1068 Ex ia Ex ia mA, | liaphi IIB 7 IIIC ⁻ P _i = 6 | гадт IEC ⁻ 4 Gа Г 85° (660 m | Ex IE C Da W, C | BE 12 | 2. 002 7 | 7 X , L _i = 5 | | | the he | | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457 Safety technical maximum | values | option: others ceram pressu A / 2-wir IBExU zone 0 zone 2 U _i = 28 the su | on re ic Al ₂ ire po e) 10 A : : : : : : : : : : : : : : : : : : : | 0 ₃ 96 ort, se TEX II 1G II 1D I = 93 | % als, c 1068 Ex ia Ex ia mA, l ction | liaphi IIB T IIIC ⁻ P _i = 6 s hav | гадт IEC 4 Ga Г 85° 60 m ге ап | Ex IE C Da W, C inner | BE 12 i = 10 capa | 2. 0027 05 nF | 7 X , L _i = 5 of max | 6 μH, . 140 | | the ho | using | | | | |
| Diaphragm Media wetted parts ² IS-version on request | values | option: others ceram pressu 1 / 2-win 1 BExU zone 0 zone 2 U _i = 28 the su in zone | on re ic Al ₂ (ire po e) 10 A : : : : : : : : : : : : : : : : : : : | 0 ₃ 96 ort, se ATEX II 1G II 1D I = 93 conne | % als, c 1068 Ex ia Ex ia mA, ction | liaphi IIB T IIIC ⁻ P _i = 6 s hav 20 | гадт IEC 74 Ga Г 85° (660 m ге ап 60 ° (| Ex IE C Da W, C inner C with | BE 12 i = 10 capa | 2. 0027 05 nF | 7 X , L _i = 5 | 6 μH, . 140 | | the ho | using | | | | |
| Diaphragm Media wetted parts ² <i>IS-version on request</i> IS-protection (only for 4 Approvals DX19-DMK 457 Safety technical maximum | values | option: others ceram pressu A / 2-wir IBExU zone 0 zone 2 U _i = 28 the su | e) 10 Al ₂ (10 PC 10 A 10 | 0 ₃ 96 ort, se ATEX II 1G II 1D I = 93 conne | % als, c 1068 Ex ia Ex ia mA, ction | liaphi IIB T IIIC ⁻ P _i = 6 s hav 20 20 | ragm IEC 4 Ga 7 85°(60 m 7 85°(60 °(70 °(| Ex IE C Da W, C inner C with C | BE 12 i = 10 capa n p _{atm} | 2.0027 05 nF acity c 0.8 b | 7 X , L _i = 5 of max | i μH, . 140 to 1.1 | bar | | | | | | |



DMK 457 Ordering Code

| DMK 457 | | - |]-[_ | -[| - | |]-[| Π |]. | - 🗌 | - | -□ | - 🗌 | |] |
|--|-------------------------|---|--------|----|---|-----|--------|------------------|----|--------|-------------|----|-----|-------------------|---------|
| Pressure | 5 0 0 | | | | | | | | | | | | | | |
| in bar, gauge in bar, absolute | 5 9 0 5 9 1 5 9 2 | | | | | | | | | | | | | | |
| in mH ₂ O, gauge in mH ₂ O, absolute | 5 9 2 5 9 3 | | | | | | | | | | | | | | |
| Input [mH ₂ O] [bar] | 0 0 0 | | | | | | | | | | | | | | |
| 4 0.4 6 0.6 | | 4 0 0 0 | | | | | | | | | | | | | |
| 10 1.0 | | 1 0 0 1 | | | | | | | | | | | | | |
| 16 1.6 25 2.5 | | 1 6 0 1 2 5 0 1 | | | | | | | | | | | | | |
| 40 4.0 | | 4 0 0 1 | | | | | | | | _ | _ | | | | |
| 60 6.0 100 10 | | 6 0 0 1 1 0 0 2 | | | | | | | | | | | | | |
| 160 16 250 25 | | 1 6 0 2 | | | | | | | | | | | | | |
| 400 40 | | 4 0 0 2 | | | | | | | | | | | | | |
| 600 60 100 | | 6002 | | | | | | | | _ | | | | | |
| 160 | | 1 6 0 3 | | | | | | | | | | | | | |
| 250 400 | | 2 5 0 3 | | | | | | | | | | | | | |
| 600 | | 6 0 0 3 | | | | | | | | | | | | | |
| -1 0 customer | | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | | | | _ | | | | | consult |
| Output | | 0 0 0 0 | | | | | | | | | | | | | Conoun |
| 4 20 mA / 2-wire Intrinsic safety 4 20 mA / 2-wire | | | 1 E | | | | | | | | | | | | |
| customer | | | 9 | | | | | | | | | | | | consult |
| Accuracy 0.5 % | | | | 5 | | | | | | | | | | | |
| customer | | | | 9 | | | | | | _ | _ | | _ | | consult |
| Electrical connection Male and female plug ISO 4400 | _ | _ | | | 0 | 1 0 | | | | | | | | | |
| (for cable Ø 46 mm) | 2 | | | | G | 1 0 | | | | | | | | | |
| Male and female plug ISO 4400 GL ¹ (for cable Ø 1014 mm) | | | | | G | 0 0 | | | | | | | | | |
| Male and female plug ISO 4400 GL ¹ | , 2 | | | | G | 0 1 | | | | | | | | | |
| (for cable Ø 4.511 mm) Cable outlet ¹ | , 3 | | | | т | R 0 | | | | | | | | | |
| Field housing stainless steel Submersible version (1.4404 / 316L) | | | | | 8 | 8 0 | | | | | | | | | |
| with PUR cable ¹ | , 3 | | | | Т | T 1 | | | | | | | | | |
| Submersible version (CuNiFe) with PUR cable ¹ | , 3 | | | | т | S 1 | | | | | | | | | |
| customer | | | | | 9 | 99 | | | | | | | | | consult |
| Mechanical connection G1/2" DIN 3852 | | | | | | | 1 | 0 | 0 | | | | | | |
| G1/2" EN 837 | | | | | | | 2 | 0 | 0 | | | | | | |
| G1/4" DIN 3852 G1/4" EN 837 | | | | | | | 3 4 | 0 | 0 | | | | | | |
| G1/2" DIN 3852 open pressure port ⁴ | | | | | | | H | 0 | 0 | | | | | | |
| 1/2" NPT 1/4" NPT | | | | | | | N | 0 0 4 9 | 0 | | | | | | |
| customer | | | | | | | 9 | 9 | 9 | | | | | | consult |
| Seals FKM | | | | | | | | | | 1 | | | | | |
| FFKM 5 | | | | | | | | | | 7 | | | | | |
| option NBR ^o customer | | | | | | | | | | 5 9 | | | | | consult |
| Pressure port Stainless steel 1.4404 (316L) | | | | | | | | | | | 1 | | | | |
| Copper-Nickel-alloy (CuNi10Fe1Mn) 6 | | | | | | | | | | | 1 K 9 | | | | |
| customer Diaphragm | | | | | | | | | | | 9 | | | | consult |
| Ceramics Al ₂ O ₃ 96% | | | | | | | | | | | | 2 | | | |
| customer Special version | | | | | | | | | | | | 9 | | | consult |
| standard | | | | | | | | | | | | | 0 | 0 0 | |
| oxygen application ⁷ customer | | | | | | | | | | | | | 0 | 0 0 0 7 9 9 | consult |
| Gustomer | | | | | | | | | | | | | 5 | 0 0 | consult |

¹ Shielded cable has to be used! Cable versions are delivered with shielded cable.

² female plug is GL-approbated
 ³ different cable types and lengths deliverable, permissible temperature depends on kind of cable

 4 only for $P_{\rm N}$ \leq 40 bar possible

 5 only for $\rm P_N \le 100$ bar possible

⁶ optionally for nominal pressure ranges up to 400 bar and mechanical connections G1/2" DIN 3852, G1/2" EN 837, G1/2" open port,

G1/4" DIN 3852, G1/4" EN837 in combination with housing in CuNi10Fe1Mn

 $^{7}\,$ oxygen application with FKM seal possible up to 25 bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

⁹⁰ INDUSTRIAL PRESSURE TRANSMITTER



DMP 331P

Industrial Pressure Transmitter

Process Connections With Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: standard: 0.35 % FSO option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signals

2-wire: 4 ... 20 mA / 3-wire: 0 ... 10 V others on request

Special characteristics

- hygienic version
- diaphragm with low surface roughness
- ► CIP / SIP cleaning up to 150 °C
- vacuum resistant

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dust
- SIL 2 according to IEC 61508 / IEC 61511
- Diaphragm in Hastelloy[®] or Tantalum
- cooling element for media temperatures up to 300 °C

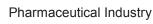
The pressure transmitter DMP 331P was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic versions makes it possible to achieve an outstanding performance in terms of accuracy, temperature behavior and long term stability.

The modular construction concept allows a combination of various process connections with different filling fluids and a cooling element. Several electrical connections complete the profile of DMP 331P.

Preferred areas of use are



Food and Beverage



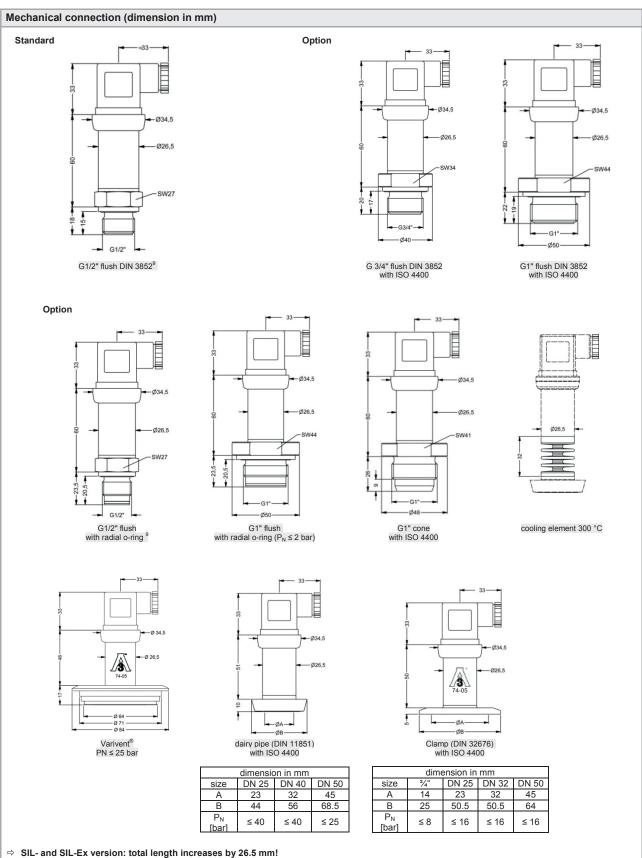
Material and test certificates

- inspection certificate 3.1 according to EN 10204
- test report 2.2 according to EN 10204



| Input pressure range ¹ | | | | | | | | | |
|---|--|---|--|--|---|--|---|-----------------------------|----------------------------|
| Nominal pressure | | | | | | | | | |
| gauge / abs. | [bar] | -10 | 0.10 | 0.16 | 0.25 | 0.40 | 0.60 | 1 | 1.6 |
| Overpressure | [bar] | 5 | 0.5 | 1 | 1 | 2 | 5 | 5 | 10 |
| Burst pressure ≥ | [bar] | 7.5 | 1.5 | 1.5 | 1.5 | 3 | 7.5 | 7.5 | 15 |
| • | [bai] | 1.5 | 1.0 | 1.5 | 1.5 | 0 | 1.5 | 1.5 | 10 |
| Nominal pressure | [bar] | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | |
| gauge / abs. | | | | | | | | | |
| Overpressure | [bar] | 10 | 20 | 40 | 40 | 80 | 80 | 105 | |
| Burst pressure ≥ | [bar] | 15 | 25 | 50 | 50 | 120 | 120 | 210 | |
| Vacuum resistance | | | | cuum resistan | се | | | | |
| 1 | | $P_N \le 1$ bar: (| • | | | | | | |
| ¹ consider the pressure resis | stance of fitt | ing and clamps | 5 | | | | | | |
| Output signal / Supply | | | | | | | | | |
| Standard | | 2-wire: 4 | 20 mA | / V _s = 8 | 32 V _{DC} | | | | |
| Option IS-protection | | 2-wire: 4 | 20 mA | V _s = 10 2 | 28 V _{DC} | | | | |
| Options 3-wire | | 3-wire: 0 | 20 mA | / V _s = 14 3 | 30 V _{DC} | | | | |
| | | | | / V _s = 14 3 | | | | | |
| Performance | | | | | | | | | |
| Accuracy ² | | standard: | nominal pr | essure < 0.4 l | oar: ≤±0 | .5 % FSO | | | |
| , | | | | essure ≥ 0.4 k | | .35 % FSO | | | |
| | | option: | nominal pr | essure ≥ 0.4 ł | oar: ≤±0 | .25 % FSO | | | |
| Permissible load | | current 2-w | | = [(V _S - V _{S min}) | | | | | |
| i cimiosibic ludu | | current 3-w | | - [(vs — vs min) = 500 Ω | 1 0.02 AJ 32 | | | | |
| | | voltage 3-v | | | | | | | |
| Influence offacto | | | | 10 kΩ | lood: 0 | | kO | | |
| Influence effects | | | .05 % FSO / | | | .05 % FSO / | K75 | | |
| Long term stability | | | | t reference co | | | | | |
| Response time | | 2-wire: < 1 | | | | ≤ 3 msec | | | |
| ² accuracy according to IEC | | | | | , repeatability) | | | | |
| Thermal effects (Offset | t and Spar | n) ° / Permiss | sible temper | atures | | | | | |
| Nominal pressure P _N | [bar] | | -1 0 | | < (| .40 | | ≥ 0.40 | |
| Tolerance band | [% FSO] | | ≤±0.75 | | ≤ ± | 1,5 | | ≤ ± 0.75 | |
| in compensated range | [°C] | | -20 85 | | 0 | . 50 | | -20 85 | |
| Permissible temperature | es ⁴ | medium: | | -40 1 -10 1 | 25 °C for filli | ng fluid silico ng fluid food | n oil compatible o | vil | |
| | | electronics | / environme | | | ing hald lood | | ige: -40 10 | D°C |
| Permissible temperature | medium | filling fluid | | | | -40 300 ° | | um: -40 15 | |
| | | | | | | -10 250 °C | | um: -10 15 | |
| | | tilling fluid t | food compati | ible oil o | vernressure. | | | | |
| for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m | °C nt can influer | ice thermal eff | food compati fects for offset e gauge > 0 ba | and span depe | nding on instal | lation position a | and filling cond | litions. | 0.0 |
| for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for $P_{abs} \le 1$ bar | °C nt can influer | ice thermal eff | ects for offset | and span depe | nding on instal | lation position a | and filling cond | litions. | |
| for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection | °C nt can influer | nce thermal eff pminal pressur | ects for offset e gauge > 0 ba | and span depe | nding on instal | lation position a | and filling cond | litions. | |
| for cooling element 300° ³ an optional cooling element ⁴ max. temperature of the m ⁵ also for P _{abs} ≤ 1 bar Electrical protection Short-circuit protection | °C nt can influer nedium for no | nce thermal eff ominal pressur | ects for offset e gauge > 0 ba | and span depe ar: 150 °C for 6 | nding on instal | lation position a | and filling cond | litions. | |
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| Explosion protection (only for 4 . | | | | | |
|---|--|-----------------------------------|---|--|---|
| Approvals DX 19-DMP 331P | IBExU 10 ATEX 10 zone 0: II 1G Ex | 68 X / IECEx IBI ia IIC T4 Ga | | II 1D Ex ia IIIC T 8 | 5°C Da |
| Safety technical maximum values | $U_i = 28 V, I_i = 93 mA$ the supply connection | | ≈ 0 nF, L _i ≈ 0 μH, capacity of max. 27 nF | to the housing | |
| Max. temperatures for environment | in zone 0: in zone 1 or higher: | | n p _{atm} 0.8 bar up to 1.1 | | |
| Connecting cables by factory) | cable capacitance: cable inductance: | signal line/shiel | d also signal line/signa d also signal line/signa | | |
| Miscellaneous | | | | | |
| Option SIL ⁶ 2 | according to IEC 61 | 508 / IEC 61511 | | | |
| Current consumption | signal output curren | | signal outp | ut voltage: ma | x. 7 mA |
| Veight | min. 200 g (dependi | | | at voltago. ma | |
| installation position | any (standard calibr | ation in a vertical p | position with the pressu bar have to be specifi | ure port connection ed in the order) | down; |
| Operational life | > 100 x 10 ⁶ pressure | e cycles | | | |
| CE-conformity | EMC Directive: 2004 | 4/108/EC | | | |
| ATEX Directive | 94/4/EG | | | | |
| ³ only for 4 20 mA / 2-wire | | | | | |
| Wiring diagrams | | | | | |
| 2-wire-system (current) | | 2 wir | e-system (current / voltag | <u>م)</u> | |
| | | | supply + | | |
| p supply + A a supply - E | -• + Vs -• - | p | I/U signal + | -(AV) | |
| Pin configuration | | | | | |
| Electrical connection | 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 3-wire) | 3 | 1 | 3 | OUT+ | gn (green) |
| Shield | ground pin | 5 | 4 | | ye/gn |
| | <u> </u> | • | | = | (yellow / green) |
| Electrical connections (dimensio | , | | | | |
| standard | option | 1 | M12x1 | | Ø4,3 |
| | 900 | 9 9 1 | 2 2 2 2 2 2 2 2 2 2 2 2 2 2 3 4,5 - | | ¢35 |
| | | | | | |
| ISO 4400 (IP 65) | Binder Series 72 (IP 67) | 3 | M12x1 4-pin (IP 67) | cabl | e outlet with PVC cable (IP 67) ⁷ |
| | | 49,5 49,5 M12x1,5 0 26,5 | - SOI | | |
| .. | (1 | ield housing P 67) | | , cable with ventilation tub (IP 68) ⁸ | De |
| universal field housing stainle and other versions on reques | | with cable gland M | · - | 80) | |
| standard: 2 m PVC cable without ventil | | | | | |



⇒ metric threads and other versions on request

⁹ possible only for $P_N \ge 1$ bar

| DMP 331P | <u></u> | |
|--|---|---------|
| Pressure gauge | 5 0 0 5 0 1 | |
| absolute Input [bar] | | |
| 0.10 0.16 | | |
| 0.25 0.40 | 2 5 0 0 4 0 0 0 | |
| 0.60 | 6 0 0 0 | |
| 1.0 1.6 | 1 0 0 1 1 1 6 0 1 | |
| 2.5 4.0 | 2 5 0 1 4 0 0 1 | |
| 6.0 | 6 0 0 1 | |
| 10 16 | 1 6 0 2 | |
| 25 40 | 2 5 0 2 4 0 0 2 | |
| -1 0 customer | 4 0 0 2 X 1 0 2 9 9 9 9 | consult |
| Output | | Consult |
| 4 20 mA / 2-wire 0 20 mA / 3-wire | 1 2 | |
| 0 10 V / 3-wire Intrinsic safety 4 20 mA / 2-wire | 3 E E E E E E E E E E E E E E E E E E E | |
| SIL2 4 20 mA / 2-wire | 1S | |
| SIL2 with Intrinsic safety 4 20 mA / 2-wire customer | ES | consult |
| Accuracystandard for $P_N \ge 0.4$ bar0.35 % | 3 | |
| standard for $P_N < 0.4$ bar 0.5% option for $P_N \ge 0.4$ bar 0.25% | 5 2 | |
| customer | 9 | consult |
| Electrical connection Male and female plug ISO 4400 | 1 0 0 | |
| Male plug Binder series 723 (5-pin) Cable outlet with PVC-cable ¹ | 2 0 0 T A 0 | |
| Cable outlet ² | TRO | |
| Male plug M12x1 (4-pin) / metal Compact field housing stainless steel | M 1 0 8 5 0 | |
| stainless steel 1.4305 ³ customer | 999 | consult |
| Mechanical connection G1/2" with flush | | |
| welded diaphragm (DIN 3852) ⁴ | Z 0 0 | |
| G3/4" with flush welded diaphragm (DIN 3852) | Z 3 0 | |
| G1" with flush welded diaphragm (DIN 3852) | Z 3 1 | |
| G1" DIN 3852 with rad. o-ring and flush diaphragm ⁵ | Z 5 7 | |
| G1/2" DIN 3852 with rad. o-ring and flush diaphragm ⁴ | Z 6 1 | |
| G 1" cone | K 3 1 C 6 1 | |
| Clamp DN 25 / 1" (DIN 32676) / 3A Clamp DN 32 / 1 1/2" (DIN 32676) / 3A | C 6 2 | |
| Clamp DN 50 / 2" (DIN 32676) / 3A Clamp 3/4" (DIN 32676) / 3A | C 6 3 | |
| Dairy pipe DN 25 (DIN 11851) ³ Dairy pipe DN 40 (DIN 11851) ³ | C 6 9 M 7 3 M 7 5 | |
| Dairy pipe DN 50 (DIN 11851) 3 | M 7 6 | |
| Varivent [®] DN 40/50 / 3A customer | P 4 1 9 9 9 | consult |
| Diaphragm Stainless steel 1.4435 (316L) | 1 | |
| Tantalum | Т | consult |
| Hastellov [®] C-276 (2.4819) customer | H 9 | consult |
| Seals for clamp, dairy pipe, Varivent [®] : without | 0 | |
| for inch thread - standard: FKM for inch thread - option: FFKM | 1 7 | |
| customer | 9 | consult |
| Filling Fluids silicon oil | 1 | |
| food grade oil (FDA) / 3A customer | 2 9 | consult |
| Special version | | oonouit |
| standard with cooling element up to 300°C / 3A | 0 0 0 2 0 0 | |
| customer | 9 9 9 | consult |

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C), others on request
² cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

³ The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe.

The cup nut has to be ordered as separate position. ⁴ possible only for $P_N \ge 1$ bar ⁵ possible only for $P_N \le 2$ bar

 $\mathsf{Varivent}^{\circledast} \text{ is a brand name of GEA Tuchenhagen GmbH, } \mathsf{Hastelloy}^{\circledast} \text{ is a brand name of Haynes International Inc.}$

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

INDUSTRIAL PRESSURE TRANSMITTER



DMK 331P

Industrial Pressure Transmitter

Pressure Ports With Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770: 0.5 % FSO

Nominal pressure

from 0 ... 60 bar up to 0 ... 400 bar

Output signals

2-wire: 4 ... 20 mA 3-wire: 0 ... 20 mA / 0 ... 10 V others on request

Special characteristics

suited for viscous and pasty media

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- SIL 2 according to IEC 61508 / IEC 61511
- food compatible filling fluid with FDA approval
- cooling element for media temperatures up to 300 °C
- customer specific versions

The pressure transmitter DMK 331P is suitable for measuring the pressure of viscous and pasty media, where a totally flush pressure port is required.

As on all industrial pressure transmitters made by BD|SENSORS, you may choose between various electrical and mechanical connections also on DMK 331P.

Preferred areas of use are



Plant and Machine Engineering



Food Industry

Preferred used for

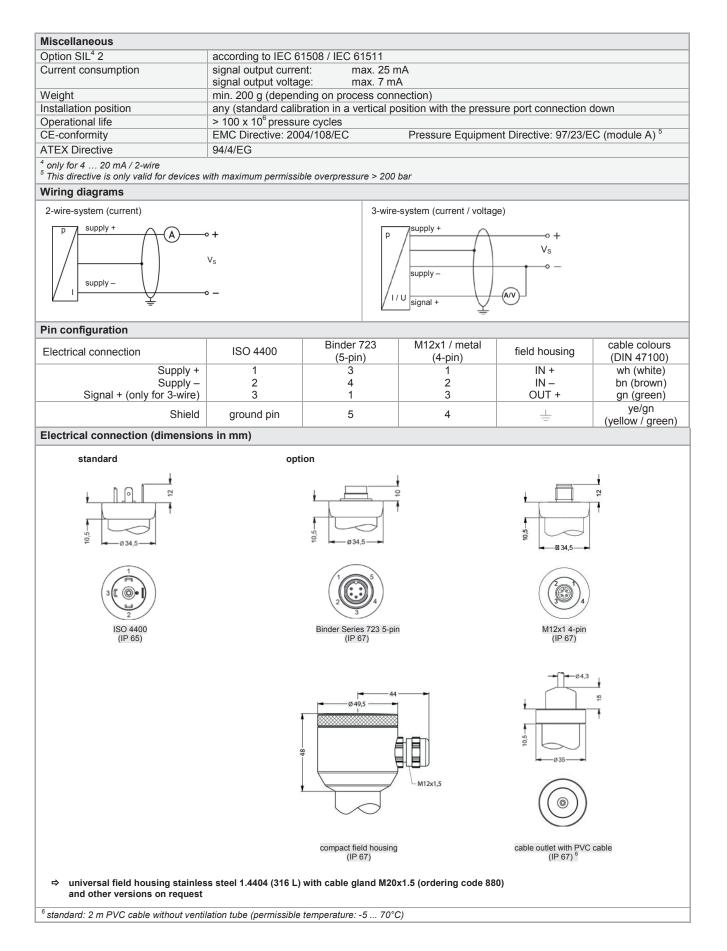


Viscous and Pasty Media



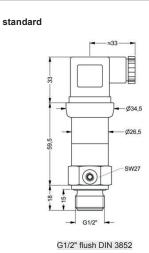
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| Input pressure range | | | | | | |
|---|---|---|--|--|-----------------|-------------------|
| Nominal pressure | | | 400 | 400 | 050 | 400 |
| gauge / abs. | [bar] | 60 | 100 | 160 | 250 | 400 |
| Overpressure | [bar] | 100 | 200 | 400 | 400 | 600 |
| Burst pressure ≥ | [bar] | 120 | 250 | 500 | 500 | 650 |
| | | | | | | |
| Output signal / Supply | | | | | | |
| Standard | 2 | -wire: 4 20 r | mA / V _S = 832 | 2 V _{DC} | | |
| Option IS-protection | 2 | | $mA / V_s = 10 \dots 28$ | | | |
| Options 3-wire | 3 | | $mA / V_s = 14 30$ | | | |
| | | 0 10 \ | V / V _s = 14 30 |) V _{DC} | | |
| Performance | | | | | | |
| Accuracy ¹ | < | ± 0.5 % FSO | | | | |
| Permissible load | | | $m_{max} = [(V_{S} - V_{S min}) / ($ |).02 Al Ω | | |
| | | urrent 3-wire: R | | | | |
| | | oltage 3-wire: R | | | | |
| Influence effects | | | FSO / 10 V | | | |
| | | 11.2 | FSO / kΩ | | | |
| Long term stability | | | ar at reference cond | tions | | |
| Response time | | -wire: ≤ 10 mse | | | | |
| | | -wire: ≤ 3 mse | | | | |
| ¹ accuracy according to IEC 6 | 60770 – limit p | oint adjustment (non- | linearity, hysteresis, re | peatability) | | |
| Thermal effects (Offset a | | | | • | | |
| Thermal error | | ± 0.2 % FSO / 10 | • | | | |
| in compensated range | | 20 85°C | | | | |
| Permissible temperatures | | nedium: | -40 125 | °C for filling fluid silice | n oil | |
| | · '' | | | °C for filling fluid food | | |
| | e | lectronics / enviror | | | compatible of | |
| | | torage: | -40 100 | | | |
| Permissible temperature r | | lling fluid silicon oil | | pressure: -40 300 ° | °C vacuur | n: -40 150 °C |
| for cooling element 300°C | 、 | lling fluid food com | | pressure: -10 250 ° | | n: -10 150 °C |
| ² an optional cooling element | | | | | | |
| ³ max. temperature of the me | | | | | | |
| Electrical protection | alannion or or p | | 0.00.00 | | iporataro or oo | <u> </u> |
| Short-circuit protection | | ormonont | | | | |
| | | ermanent o damage, but also | a no function | | | |
| Reverse polarity protectio Electromagnetic compatib | | | nity according to EN | 61006 | | |
| | | | | 01320 | | |
| Mechanical stability | | | | | | |
| Vibration | | 0 g RMS (25 20 | | ling to DIN EN 60068-2 | | |
| Shock | 5 | 00 g / 1 msec | accord | ing to DIN EN 60068-2 | 2-27 | |
| Filling fluids | | | | | | |
| Standard | S | ilicon oil | | | | |
| Options | | | (with FDA approval) | | | |
| | (| Mobil DTE FM 32; | Category Code: H1; | NSF Registration No. | : 130662) | |
| | 0 | thers on request | | | | |
| Materials | | | | | | |
| | | | | | | |
| Pressure port | s | tainless steel 1.44 | 04 (316 L) | | | |
| | | tainless steel 1.44 tainless steel 1.44 | | | | |
| Housing | S | tainless steel 1.440 | 04 (316 L) | gland brass, nickel plat | ied | others on request |
| Pressure port Housing Option compact field hous Seals (media wetted) | S | tainless steel 1.440 | 04 (316 L) | gland brass, nickel plat | ied | others on request |
| Housing Option compact field hous Seals (media wetted) Standard | sing s | tainless steel 1.440 tainless steel 1.430 KM (recommende | 04 (316 L) 05 (303) with cable (d for medium tempe | ratures ≤ 200 °C) | ied | others on request |
| Housing Option compact field hous Seals (media wetted) | sing s F F | tainless steel 1.44(tainless steel 1.43) KM (recommender FKM (recommend | 04 (316 L) 05 (303) with cable (| ratures ≤ 200 °C) | ted | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option | sing s F F o | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp | ratures ≤ 200 °C) | ted | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm | sing s F F o s | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) | ratures ≤ 200 °C) | led | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm | sing s F F o s | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) | ratures ≤ 200 °C) | led | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm | sing s F F o s p | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals | 04 (316 L) 05 (303) with cable of d for medium tempe ed for medium temp 35 (316 L) | ratures ≤ 200 °C) | led | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts | sing s F F o s p nly for 4 | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) | 04 (316 L) 05 (303) with cable of d for medium tempe ed for medium temp 35 (316 L) | ratures ≤ 200 °C) eratures > 200 °C) | ied | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or | sing s sing f F o s p nly for 4 | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm | ratures ≤ 200 °C) eratures > 200 °C) | ied | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals | sing s sing f F o s p nly for 4 z | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) s, diaphragm 68 X / IECEx IBE | ratures ≤ 200 °C) eratures > 200 °C) 12.0027X | ied | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P | sing s sing f F o s p nly for 4 : z | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm 68 X / IECEx IBE 68 IIC T4 Ga 6 i al IIC T4 Ga 6 i al IIC T85°C Da, 1 | ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 | ied | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P Safety technical maximum | sing s sing f F o s p nly for 4 : z n values L | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 5, diaphragm 68 X / IECEx IBE 1 a IIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈ | ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 0 nF, L _i ≈ 0 μH | | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals | sing s sing s F F o s p nly for 4 z n values L for ir | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) a, diaphragm 68 X / IECEx IBE (a IIIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈ -20 60 °C with 1 | ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 | | others on request |
| Housing Option compact field hous Seals (media wetted) Standard Option Diaphragm Media wetted parts Explosion protection (or Approvals DX 19 - DMK 331P Safety technical maximum Permissible temperatures | sing s sing s F F o s p nly for 4 z n values L for ir | tainless steel 1.440 tainless steel 1.430 KM (recommender FKM (recommend thers on request tainless steel 1.443 ressure port, seals 20 mA / 2-wire) 3ExU 10 ATEX 10 one 0: II 1G Ex one 20: II 1D Ex b ₁ = 28 V, l ₁ = 93 m/ | 04 (316 L) 05 (303) with cable (d for medium tempe ed for medium temp 35 (316 L) 68 X / IECEx IBE (a IIIC T4 Ga (a IIIC T4 Ga (a IIIC T 85°C Da, 1 A, Pi = 660 mW, Ci ≈ -20 60 °C with (-20 70 °C | ratures ≤ 200 °C) eratures > 200 °C) 12.0027X P65 0 nF, L _i ≈ 0 μH | ar | others on request |

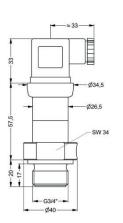


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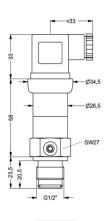
Mechanical connection (dimensions in mm)



option



G3/4" flush DIN 3852

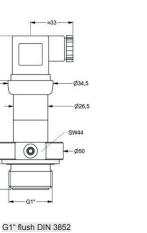


G1/2" flush with radial o-ring

 \Rightarrow SIL- and SIL-Ex version: total length increases by 26.5 mm! \Rightarrow metric threads and other versions on request

⁷ possible for nominal pressure ranges $P_N \leq 160$ bar

This document contains product specifications; properties are not guaranteed. Subject to change without notice.



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DMK 331P Ordering Code

| Pressure gauge 0 5 0 6 0 2 0 <t< th=""><th>DMK 331P</th><th></th><th>0-0-</th><th></th><th>-</th><th>]-[]- </th><th>]-[]</th><th>-[]</th><th></th><th></th></t<> | DMK 331P | | 0-0- | | - |]-[]- |]-[] | -[] | | |
|--|---------------------------------------|---------|------|-------|-------|-------|------|-----|-----|---------|
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | | | | | | | |
| Input Dark Dark <thdark< th=""> Dark Dark <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<></thdark<> | | | | | | | | | | |
| $\begin{array}{c c} 250 & 2 & 5 & 0 & 3 \\ \hline 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & A & 2 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 &$ | | | | | | | | | | |
| $\begin{array}{c c} 250 & 2 & 5 & 0 & 3 \\ \hline 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & A & 2 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 &$ | | 6 0 0 2 | | | | | | | | |
| $\begin{array}{c c} 250 & 2 & 5 & 0 & 3 \\ \hline 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & 4 & 0 & 0 & 3 \\ \hline 0 & 0 & 0 & A & 2 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & A & 3 & \text{wire} & 2 \\ \hline 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 3 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & M & 2 & \text{wire} & 2 \\ \hline 1 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \hline 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 &$ | | 1 0 0 3 | | | | | | | | |
| 400 4 0 0 3 consult Output 420 mA/2-wire 1 | | 1603 | | | | | | | | |
| Output 4 20 mA / 2-wire 1 <th1< th=""> <th1< th=""></th1<></th1<> | | 4 0 0 3 | | | | | | | | |
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| 020 mA / 3-wire 2 1 | | | | | | | | | | |
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| Intrinsic safety 4 20 mA / 2-wire 15 16 | | | 2 | | | | | | | |
| SIL2 with intrinsic stepty ES Image: Site stepsy and the stepsy a | | | F | | | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | 1S | | | | | | | |
| 4 20 mM / 2-Wife 9 0 | | | FS | | | | | | | |
| Accuracy 0.5 % 5 9 4 6 7 1 7 1 <th1< th=""> 1 1 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td>_</td><td></td><td></td><td></td></th<></th1<> | | | | | | | _ | | | |
| 0.5 % 5 9 0 <td></td> <td></td> <td>9</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>consult</td> | | | 9 | | | | | | | consult |
| customer9100< | | | 5 | | | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | | | | | | | consult |
| Male plug Binder series 723 (5-pin) 2 0 0 1 | | | | | | | | | | |
| Cable outlet with PVC-cable 1TA0I00 | | | | 1 0 0 | | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | 200 | | | | | | |
| Compact field housing stainless steel 1.43058501111Mechanical connection999911111G1/2" DIN 3852 with flush diaphragmZ30111111G3/4" DIN 3852 with flush diaphragmZ3111 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | |
| stainless steel 1.4305 \circ <td></td> | | | | | | | | | | |
| Mechanical connectionCCCCCG1/2 DIN 3852 with flush diaphragmZ30IIIIG3/4" DIN 3852 with flush diaphragmZ31IIIIG1" DIN 3852 with flush diaphragmZ31IIIIIG12" DIN 3852 with rad. o-ring and flush diaphragmZ61II <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<> | | | | | | | | | | |
| $ \begin{array}{c c c c c c c } \hline G1/2" DIN 3852 with flush diaphragm flu$ | | | | 999 | | | | | | consult |
| flush diaphragm2001111G3/4" DIN 3852 with flush diaphragmZ3011111G1" DIN 3852 with flush diaphragmZ3111 </td <td></td> | | | | | | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | | Z 0 0 | | | | | |
| flush diaphragm23011G1" DIN 3852 with flush diaphragmZ31111G 1/2" DIN 3852 with rad. o-ring and flush diaphragmZ61111G 1/2" DIN 3852 with rad. o-ring and flush diaphragmZ611111G 1/2" DIN 3852 with rad. o-ring and flush diaphragmZ6111 <t< td=""><td></td><td></td><td></td><td></td><td>7 0 0</td><td></td><td></td><td></td><td></td><td></td></t<> | | | | | 7 0 0 | | | | | |
| flush diaphragm2311111G 1/2" DIN 3852 with rad. o-ring and flush diaphragmZ61155customer999066666Diaphragm1116666666Stainless steel 1.4435 (316L)1166 | flush diaphragm | | | | Z 3 0 | | | | | |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | | Z 3 1 | | | | | |
| and flush diaphragm 2 0 1 < | | | | | | | | | | |
| customer999900000Diaphragm11 <td></td> <td></td> <td></td> <td></td> <td>Z 6 1</td> <td></td> <td></td> <td></td> <td></td> <td></td> | | | | | Z 6 1 | | | | | |
| Stainless steel 1.4435 (316L)1IIIIIcustomer9IIIIISealsIIIIIIFKM 27IIIIIFFKM 27IIIIICustomer9IIIIIFilling FluidsIIIIIISilicon oil1IIIIIfood compatible oil2IIIICustomer9IIIIISpecial version9IIIIwith cooling element up to 300°C 3 200I | | | | | 999 | | | | | consult |
| customer9IIIIISealsIIIIIIFKM1IIIIIIFFKM7IIIIIIGustomer9IIIIIIFilling Fluids1IIIIIISilicon oil1IIIIIIfood compatible oil2IIIIICustomer9IIIIIISpecial version9IIIIIIwith cooling element up to 300°C 3 200II | | | | | | | | | | |
| Seals I I I FFKM ² 7 I I Customer 9 I I Silicon oil 1 I I food compatible oil 2 I customer 9 I I Special version 9 I I standard 0 0 I with cooling element up to 300°C ³ 2 0 | | | | | | 1 | | | | |
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| FFKM ² 7 1 4 1 customer 9 4 4 consult Filling Fluids 1 4 4 Silicon oil 1 2 4 4 food compatible oil 2 4 4 4 customer 9 4 4 4 Special version 9 4 4 4 with cooling element up to 300°C ³ 2 0 0 0 | | | | | | | 1 | | | |
| Customer 9 I I Consult Filling Fluids I I I I Silicon oil 1 1 I I food compatible oil 2 I I customer 9 I Consult Special version 9 I Consult with cooling element up to 300°C ³ 2 0 0 | FFKM ² | | | | | | | | | |
| Silicon oil 1 2 1 food compatible oil 2 2 2 customer 9 2 2 Special version 9 2 0 with cooling element up to 300°C ³ 2 0 0 | customer | | | | | | 9 | | | consult |
| food compatible oil 2 2 2 customer 9 4 consult Special version 5 5 with cooling element up to 300°C ³ 2 0 | | | | | | | | | | |
| customer 9 a consult Special version a a standard 0 0 with cooling element up to 300°C ³ 2 0 | | | | | | | | | | |
| Special version 0 0 standard 0 0 with cooling element up to 300°C ³ 2 0 | | | | | | | 2 | | | consult |
| standard 0 0 0 0 vith cooling element up to 300°C ³ | | | | | | | 9 | | | Consult |
| with cooling element up to 300°C ³ 2 0 0 | standard | | | | | | | 0 | | |
| customer 9 9 9 consult | with cooling element up to 300°C 3 | | | | | | | 2 | 0 0 | |
| | customer | | | | | | | 9 | 99 | consult |

 1 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \ldots 70°C)

² only for $P_N \le 100$ bar possible ³ only for $P_N \le 160$ bar possible

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

100 INDUSTRIAL PRESSURE TRANSMITTER



DMK 351P

Pressure Transmitter for the Process Industry

Ceramic Sensor

accuracy according to IEC 60770: Standard: 0.35 % FSO Option: 0.25 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 bar

Output signal

2-wire: 4 ... 20 mA 3-wire: 0 ... 10 V others on request

Special characteristics

- hygienic version
- different process connections (G1 1/2", diary pipe, clamp, etc.)
- high overpressure capability

Optional versions

- IS-version
 Ex ia = intrinsically safe for gases and dusts
- diaphragm 99.9 % Al₂O₃
- customer specific versions
 e.g. special pressure ranges

The pressure transmitter DMK 351P has been designed for measuring small system pressure in the food industry and chemical industry.

The DMK 351P is based on an own-developed capacitive ceramic sensor element. It features high overpressure resistance and high resistance against most of aggressive media. A variety of different process and electrical connections and an intrinsically safe version complete the range of possibilities.

Preferred areas of use are



Food Industry



Chemical and Petrochemical Industry

Preferred used for



Paint and Varnish

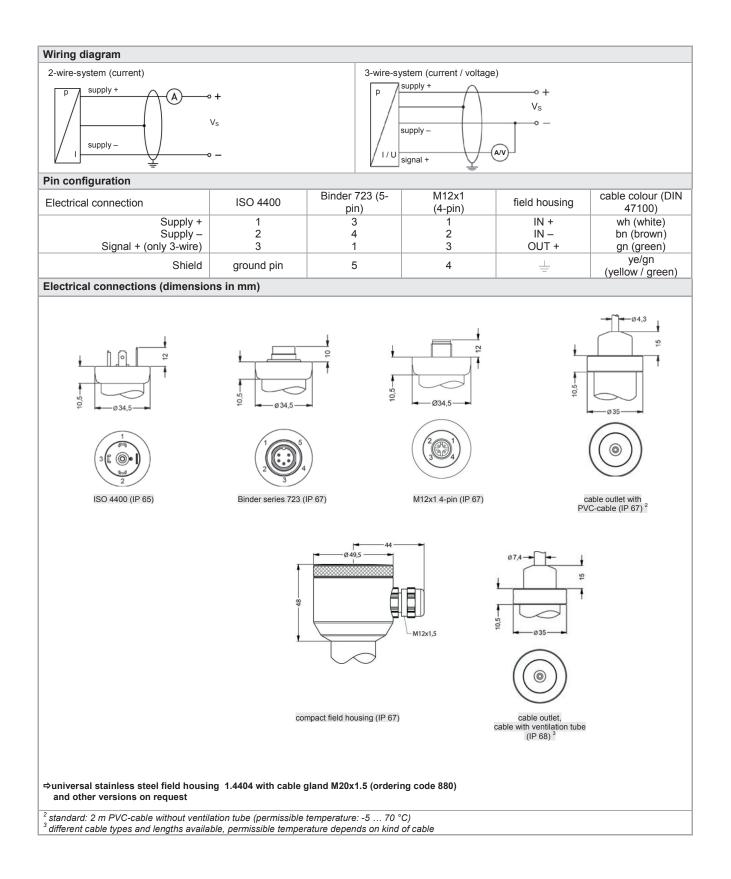


Viscous and Pasty Media

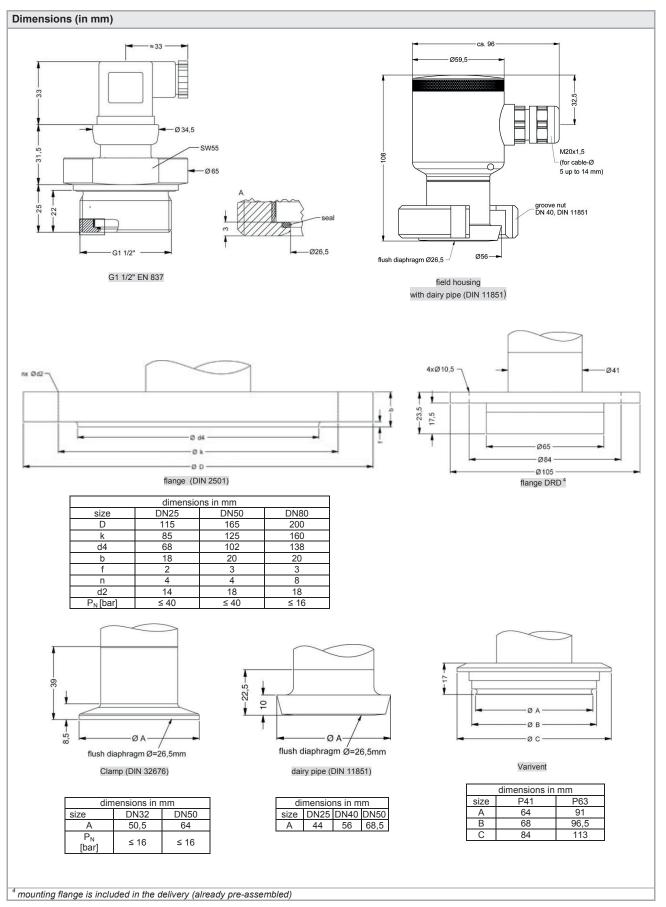


| Pressure ranges | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|
| 1 0 0 1 | bar] 0.04 0.06 0.1 0.16 0.25 0.4 0.6 1 1.6 2.5 4 6 10 16 20 | | | | | | | | |
| · · · · · · · · · · · · · · · · · · · | bar] on request 0.4 0.6 1 1.6 2.5 4 6 10 16 20 | | | | | | | | |
| | bar] 2 2 4 4 6 6 8 8 15 25 35 35 45 45 | | | | | | | | |
| Permissible vacuum [I | bar] -0.2 -0.3 -0.5 -1 | | | | | | | | |
| Output signal / Supply | | | | | | | | | |
| Standard | | | | | | | | | |
| | 2-wire: $4 \dots 20 \text{ mA} / V_{\text{S}} = 9 \dots 32 V_{\text{DC}}$ | | | | | | | | |
| Option IS-protection | 2-wire: $4 \dots 20 \text{ mA} / V_{\text{S}} = 14 \dots 28 V_{\text{DC}}$ | | | | | | | | |
| Option 3-wire | 3-wire: 0 10 V / V_S = 12.5 32 V_{DC} | | | | | | | | |
| Performance | | | | | | | | | |
| Accuracy ¹ | | | | | | | | | |
| Standard | ≤ ± 0.35 % FSO | | | | | | | | |
| Option | ≤ ± 0.25 % FSO | | | | | | | | |
| Long term stability | ≤ ± 0.1 % FSO / year | | | | | | | | |
| Influence effects | supply: 0.05 % FSO / 10 V | | | | | | | | |
| | load: 0.05 % FSO / kΩ | | | | | | | | |
| Permissible load | current 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 \text{ A}] \Omega$ | | | | | | | | |
| | voltage 3-wire: $R_{min} = 10 k\Omega$ | | | | | | | | |
| Turn-on time | 700 msec | | | | | | | | |
| | 5 / sec | | | | | | | | |
| Mean measuring rate | | | | | | | | | |
| Response time | mean response time: ≤ 200 msec | | | | | | | | |
| 1 | max. response time: 380 msec | | | | | | | | |
| | - limit point adjustment (non-linearity, hysterisis, repeatability | | | | | | | | |
| Thermal errors (offset and sp | oan) / -Permissible temperatures | | | | | | | | |
| Thermal error | ≤ ±0.1 % FSO / 10 K in compensated range - 20 80°C | | | | | | | | |
| Permissible temperatures | medium: -40 125 °C | | | | | | | | |
| | electronics / environment: -40 85 °C | | | | | | | | |
| | storage: -40 100 °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 | | | | | | | | |
| Materials | | | | | | | | | |
| Pressure port | stainless steel 1.4404 | | | | | | | | |
| Housing | | | | | | | | | |
| Standard | stainless steel 1.4404 | | | | | | | | |
| compact field housing | stainless steel 1.4435 | | | | | | | | |
| Seal (media wetted) | FKM | | | | | | | | |
| | EPDM | | | | | | | | |
| | others on request | | | | | | | | |
| Diaphragm | | | | | | | | | |
| Standard | ceramic Al ₂ O ₃ 96 % | | | | | | | | |
| Option | ceramic Al ₂ O ₃ 99.9 % | | | | | | | | |
| Media wetted parts | pressure port, seals, diaphragm | | | | | | | | |
| IS-protection (only for 4 20 | | | | | | | | | |
| Approval DX 14-DMK 351 P | | | | | | | | | |
| Approval DX 14-DIVIK 351 P | male (connector)-version: | | | | | | | | |
| | zone 0: II 1 G Ex ia IIC T4 | | | | | | | | |
| | zone 20: II 1 D Ex IP6X T=85°C | | | | | | | | |
| | cable-version: | | | | | | | | |
| | | | | | | | | | |
| | zone 0: II 1 G EEx ia IIB T4 | | | | | | | | |
| O-fat-task 1 - 1 | zone 0: II 1 G EEX la IIB 14 zone 20: II 1 D EEX IP6X T=85°C | | | | | | | | |
| Safety technical | zone 20: II 1 D EEX IP6X T=85°C | | | | | | | | |
| maximum values | zone 20: II 1 D EEX IP6X T=85°C U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 27 nF, L _i = 5 μH | | | | | | | | |
| maximum values Max. permissible temperature for | zone 20: II 1 D EEX IP6X T=85°C U _i = 28 V, I _i = 93 mA, P _i = 660 mW, C _i = 27 nF, L _i = 5 μH or zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar | | | | | | | | |
| maximum values Max. permissible temperature for environment | zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables | zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar zone 1: -25 70 °C capacity: signal line / shield also signal line / signal line: 160 pF/m | | | | | | | | |
| maximum values Max. permissible temperature for environment | zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables | zone 20: II 1 D EEX IP6X T=85°C $U_i = 28 V, I_i = 93 \text{ mA}, P_i = 660 \text{ mW}, C_i = 27 \text{ nF}, L_i = 5 \mu\text{H}$ or zone 0: -20 60 °C for p _{atm} 0.8 bar up to 1.1 bar zone 1: -25 70 °C capacity: signal line / shield also signal line / signal line: 160 pF/m | | | | | | | | |
| maximum values Max. permissible temperature for environment Connecting cables (by factory) Miscellaneous | $\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone \ 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \end{array}$ | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption | $\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \end{array}$ | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight | $\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \\ \hline min. \ 200 \ g \end{array}$ | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight Installation position | $\begin{tabular}{ c c c c c } \hline zone 20: II 1 D EEX IP6X T=85°C \\ U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 27 nF, L_i = 5 \muH \\ \hline or zone 0: -20 60 °C for patm 0.8 bar up to 1.1 bar zone 1: -25 70 °C \\ \hline capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 \muH/m \\ \hline max. 21 mA min. 200 g any \\ \hline \end{tabular}$ | | | | | | | | |
| maximum values Max. permissible temperature freenvironment Connecting cables (by factory) Miscellaneous Current consumption Weight | $\label{eq:constraint} \begin{array}{ c c c c c } \hline zone 20: & II 1 D EEX IP6X T=85^{\circ}C \\ \hline U_i = 28 \ V, \ I_i = 93 \ mA, \ P_i = 660 \ mW, \ C_i = 27 \ nF, \ L_i = 5 \ \mu H \\ \hline or & zone 0: & -20 \ \ 60 \ ^{\circ}C \ for \ p_{atm} \ 0.8 \ bar \ up \ to \ 1.1 \ bar \\ zone 1: & -25 \ \ 70 \ ^{\circ}C \\ \hline capacity: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 160 \ pF/m \\ \hline inductance: & signal \ line \ / \ shield \ also \ signal \ line \ / \ signal \ line: \ 1 \ \mu H/m \\ \hline \hline max. \ 21 \ mA \\ \hline min. \ 200 \ g \end{array}$ | | | | | | | | |

DMK 351P Technical Data



DMK 351P Technical Data



| DMK 351P | | □-□-┯━- | Щ-О-О | -П-Щ | П |
|---|--------------------|----------------|-------------------------|------|---|
| Pressure | | | | | |
| gauge absolute 1 | 2 9 5 1 2 9 6 | | | | |
| Input [mH ₂ O] [bar] | 296 | | | | |
| 0.4 0.04 | 0 4 0 0 | | | | |
| 0.6 0.06 | 0 6 0 0 | | | | |
| 1.0 0.10 | 1 0 0 0 | | | | |
| 1.6 0.16 | 1 6 0 0 | | | | |
| 2.5 0.25 | 2 5 0 0 | | | | |
| 4.0 0.40 | 4 0 0 0 | | | | |
| 6.0 0.60 | 6 0 0 0 | | | | |
| 10 1.0 16 1.6 | 1 0 0 1 1 6 0 1 | | | | |
| 25 2.5 | 1 6 0 1 2 5 0 1 | | | | |
| 40 4.0 | 4 0 0 1 | | | | |
| 60 6.0 | 6 0 0 1 | | | | |
| 100 10 | 1 0 0 2 | | | | |
| 160 16 | 1 6 0 2 | | | | |
| 200 20 | 2 0 0 2 | | | | |
| customer | 9 9 9 9 | | | | consult |
| Output | | | | | |
| 4 20 mA / 2-wire | | 1 | | | |
| 0 10 V / 3-wire | | 3 | | | consult |
| Intrinsic safety 4 20 mA / 2-wire | | E | | | |
| customer | | 9 | | | consult |
| Accuracy standard 0.35 % | | 3 | | | |
| standard 0.35 % option 0.25 % | | | | | |
| customer | | 2 9 | | | consult |
| Electrical connection | | | | | Contourt |
| Male and female plug ISO 4400 | | 1 0 0 | | | |
| Cable outlet with PVC cable 2 | 2 | T A O | | | |
| Binder series 723 | | 2 0 0 | | | |
| Compact field housing | | 8 5 0 | | | |
| Cable outlet | | T R 0 | | | |
| Male plug M12x1 (4-pin) / metal | | M 1 0 9 9 9 | | | |
| customer | | 9 9 9 | | | consult |
| Mechanical connection | | | | | |
| G 1 1/2" DIN flush (DIN 3852) | | | M 0 0 | | |
| Clamp DN 32 (DIN 32676) Clamp DN 50 (DIN 32676) | | | C 6 2 C 6 3 | | |
| Dairy pipe DN 40 (DIN 11851) ³ | 3 | | M 7 5 | | |
| Dairy pipe DN 50 (DIN 11851) | 3 | | M 7 6 | | |
| Varivent [®] DN 40/50 | | | | | consult |
| Flange DN 25 / PN 40 (DIN 2501) | | | P 4 1 F 2 0 F 2 3 | | consult |
| Flange DN 50 / PN 40 (DIN 2501) | | | F 2 3 | | consult |
| Flange DN 80 / PN 16 (DIN 2501) | | | F 1 4 | | consult |
| customer | | | 999 | | consult |
| Seals | | | | | |
| FKM | | | 1 | | |
| EPDM | | | 3 9 | | a a martine |
| Customer | | | 9 | | consult |
| Pressure port Stainless steel 1.4404 (316L) | | | 1 | | |
| customer | | | 1 | | consult |
| Diaphragm | | | 9 | | Consult |
| Ceramics Al ₂ O ₃ 96 % | | | | 2 | |
| Ceramics Al ₂ O ₃ 99.9 % | | | | C | |
| customer | | | | 9 | consult |
| Special version | | | | | |
| standard | | | | 0 0 | 0 0 |
| customer | | | | 9 9 | 9 9 consult |
| | | | | | |

 $^{\rm 1}$ absolute pressure from 0.04 bar up to 0.25 bar on request

² standard: 2 m PVC cable without ventilation tube

³ The cup nut has to be mounted by production of pressure transmitter with electrical connection field housing and mechanical connection dairy pipe. The cup nut has to be ordered as separate position.

 $\mathsf{Varivent}^{\circledast}$ is a brand name of GEA Tuchenhagen GmbH

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OEM PRESSURE TRANSMITTER



18.600 G

OEM Pressure Transmitter Pneumatics

Applications

- ► compressed air network
- ▶ general mechanical engineering

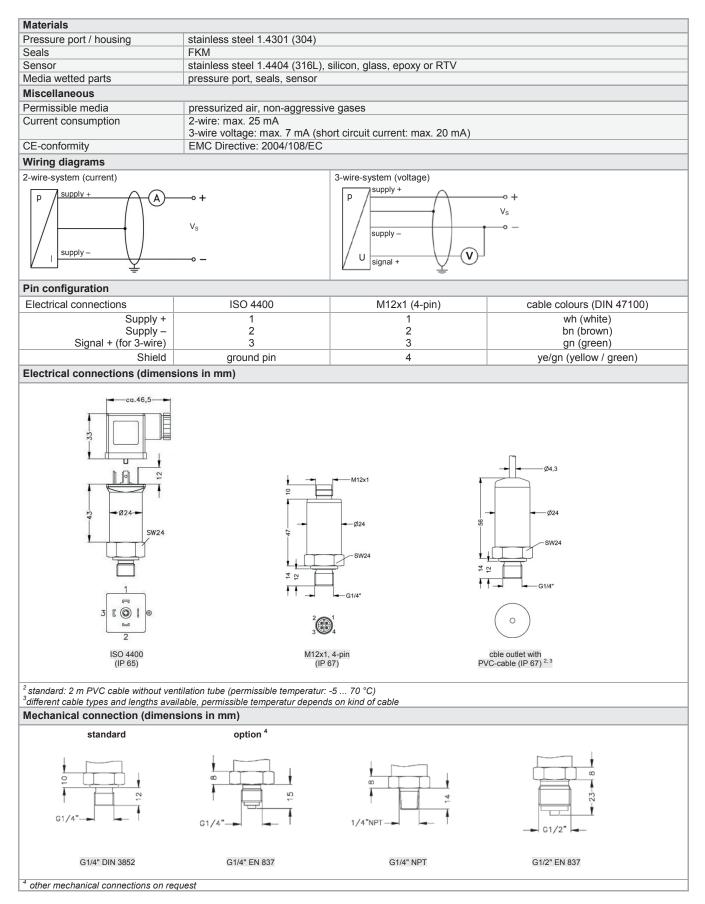
Characteristics

- silicon sensor without media isolation
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
 0 ... 100 mbar up to 0 ... 6 bar

Technical Data

| Input pressure range | | | | | | | | | | | | | | |
|---|---|------------------------------------|---|-----------------------|----------------------------|-------------------------------|---------------------|---------------------|----------|------------|------|--|--|--|
| Nominal pressure gauge | [bar] | -1 0 | 0.1 | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 | | | |
| Overpressure | [bar] | 3 | 0.5 | 1 | 1 | 3 | 3 | 6 | 10 | 10 | 20 | | | |
| F | L | | | 1 | 1 | | | | - | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | |
| Standard | | 2-wire: | | 4 | 20 mA | / | V _S = 8 | 32 V _{DC} | | | | | | |
| Option | | 3-wire: | | 0 | 10 V | 1 | V _s = 14 | 30 V _{DC} | | | | | | |
| | | 3-wire rat | iometric: | 0 | .5 4.5 \ | / / | $V_{s} = 5 \pm$ | 6.5 V _{DC} | | | | | | |
| Performance | | | | | | | | | | | | | | |
| Accuracy ¹ | | ≤±0.5 % | FSO | | | | | | | | | | | |
| Permissible load | | 2-wire: | R _{max} | $= [(V_{s} - V_{s})]$ | / _{Smin}) / 0.02 | 2 A] Ω | | | | | | | | |
| | | 3-wire: | | = 10 kΩ | | - | | | | | | | | |
| Influence effects | | supply: | supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ | | | | | | | | | | | |
| Response time | | 2-wire: ≤ 10 msec 3-wire: ≤ 3 msec | | | | | | | | | | | | |
| Measuring rate | | 1 kHz | | | | | | | | | | | | |
| ¹ accuracy according to IEC 6 | 0770 – lim | it point adju | istment (no | n-linearity, l | hysteresis, i | repeatabilit | y) | | | | | | | |
| Thermal effects (Offset a | and Spar | ı) | | | | | | | | | | | | |
| Nominal pressure P _N | [bar] | | -1 | 0 | | | ≤ 0.4 | | > (|).4 | | | | |
| Tolerance band [| [% FSO] | | ≤± | 1 | | | ≤ ± 1 | | ≤ ± 0.75 | | | | | |
| in compensated range | [°C] | | | | 0 7 | 0 | | | | -20 . | . 85 | | | |
| Permissible temperature | es | | | | | | | | | | | | | |
| Permissible temperatures | | medium: | -25 12 | 5 °C | electronic | cs / enviro | nment: -25 | 5 85 °C | storag | ge: -40 85 | °C | | | |
| Electrical protection | | | | | | | | | | | | | | |
| Short-circuit protection permanent | | | | | | | | | | | | | | |
| Reverse polarity protection no damage, but also no function | | | | | | | | | | | | | | |
| Electromagnetic compatib | Electromagnetic compatibility emission and immunity according to EN 61326 | | | | | | | | | | | | | |
| Mechanical stability | | | | | | | | | | | | | | |
| Vibration | | 10 g, 25 | Hz 2 kł | Ηz | accord | according to DIN EN 60068-2-6 | | | | | | | | |
| Shock | | 100 g / 1 | 1 msec | | accord | ling to DI | N EN 6006 | 8-2-27 | | | | | | |





| 18.600 G | |]-[|]-[] | - 🗌 | |]- | ГЦ | |]- | | - | | | |
|--|---|-----|--------|-----|-------------------|----|--------|-----|----|--------|---|---|--------|----------|
| Input [bar] 0.10 | 1 0 0 0 | | | | | | | | | | | | | |
| 0.10 | $\begin{array}{ccccc} 1 & 0 & 0 & 0 \\ 2 & 5 & 0 & 0 \\ 4 & 0 & 0 & 0 \\ 6 & 0 & 0 & 0 \end{array}$ | | | | | | | | | | | | | |
| 0.23 | 4 0 0 0 | | | | | | | | | | | | | |
| 0.40 | 6 0 0 0 | | | | | | | | | | | | | |
| 1.0 | 1 0 0 1 | | | | | | | | | | | | | |
| 1.6 | 1 6 0 1 | | | | | | | | | | | | | |
| 2.5 | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | | | | | | | | | | | | | |
| 4.0 | 4 0 0 1 | | | | | | | | | | | | | |
| 6.0 | 6 0 0 1 | | | | | | | | | | | | | |
| -1 0 | X 1 0 2 | | | | | | | | | | | | | |
| customer | X 1 0 2 9 9 9 9 | | | | | | | | | | | | | consult |
| Pressure | | | | | | | | | | | | | | |
| gauge | F | ર | | | | | | | | | | | | |
| Output | | | | | | | | | | | | | | |
| 4 20 mA / 2-wire | | 1 | | | | | | | | | | | | |
| 0 10 V / 3-wire | | 3 | | | | | | | | | | | | |
| 0.5 4.5 V / 3-wire ratiometric | | R | | | | | | | | | | | | |
| customer | | 9 | | | | | | | | | | | | consult |
| Accuracy | | | | | | | | | | | | | | |
| 0.5 % FSO | | | 5 9 | | | | | | | | | | | |
| customer | | | 9 | | | | | | | | | | | consult |
| Electrical connection | | | | | | | | | | | | | | |
| Male and female plug ISO 4400 | | | | 1 | 0 0 | | | | | | | | | |
| Male plug M12x1 (4-pin), plastic | | | | Μ | 0 0 | | | | | | | | | |
| Cable outlet with PVC-cable ¹ | | | | Т | 0 0 A 0 9 9 | | | | | | | | | |
| customer | | | | 9 | 99 | | _ | | _ | _ | | | | consult |
| Mechanical connection | | | | | | | | - | | | | | | |
| G1/4" DIN 3852 | | | | | | | 3 | 0 | 0 | | | | | |
| G1/4" EN 837 | | | | | | | 4 | 0 | 0 | | | | | |
| 1/4" NPT | | | | | | | N 9 | 4 9 | 0 | | | | | |
| Seals | | | | _ | | | 9 | 9 | 9 | | _ | | | consult |
| FKM | | | | | | | | | | 1 | | | | |
| customer | | | | | | | | | | 1 9 | | | | oc soult |
| Special version | | | | | | | | | | 9 | | | | consult |
| special version standard | | | | | | | | | | | 0 | 0 | 0 | |
| customer | | | | | | | | | | | 9 | | 0 9 | consult |
| Customer | | | | | | | | | | | 9 | 9 | 9 | consuit |

 1 standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 \dots 70 $^{\circ}\text{C})$

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108 OEM PRESSURE TRANSMITTER



18.601 G

OEM Pressure Transmitter Low Pressure

Applications

► general industrial applications

Characteristics

- ► piezoresistive stainless steel sensor
- accuracy 0.5 % FSO according to IEC 60770

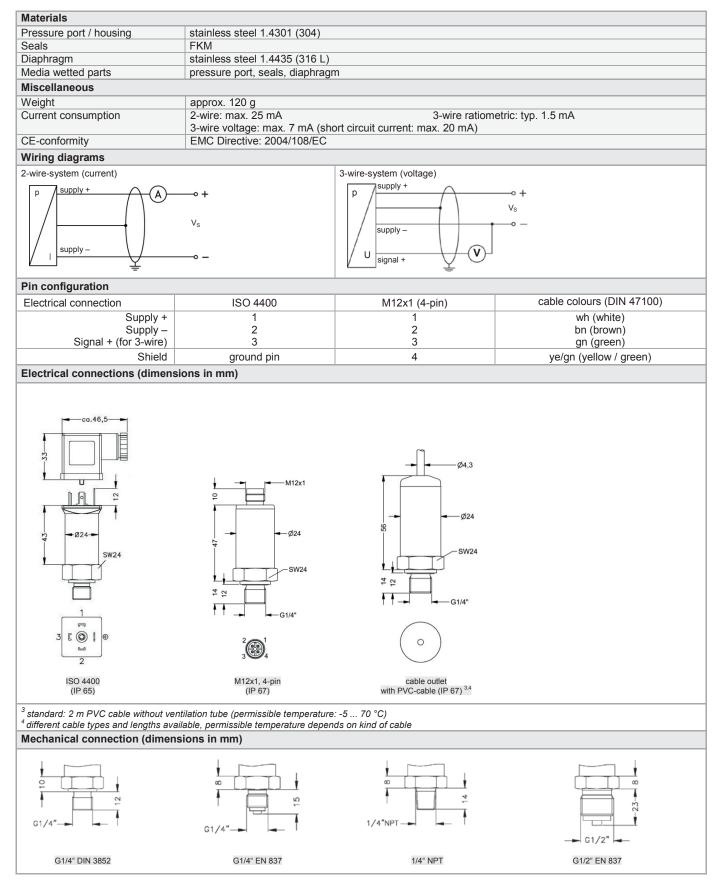
nominal pressure ranges from
 0 ... 100 mbar up to 0 ... 6 bar

Technical Data

| Input pressure range | | | | | | | | | | | |
|------------------------|-------|-----------|------|------|-----|-----|---|-----|------|------|----|
| Nominal pressure gauge | [bar] | 0.1 | 0.16 | 0.25 | 0.4 | 0.6 | 1 | 1.6 | 2.5 | 4 | 6 |
| Overpressure | [bar] | 1 | 1 | 1 | 1 | 3 | 3 | 6 | 10 | 10 | 21 |
| Burst pressure ≥ | [bar] | 1.5 | 1.5 | 1.5 | 1.5 | 5 | 5 | 10 | 17.5 | 17.5 | 35 |
| Vacuum resistance | | unlimited | | | | | | | | | |

| Output signal / Supply | |
|---|--|
| Standard | 2-wire: 4 20 mA / V _S = 8 32 V _{DC} |
| Options 3-wire | 3-wire: $0 \dots 10 V$ / $V_{\rm S} = 14 \dots 30 V_{\rm DC}$ |
| | 3-wire ratiometric: $V_{Sig} = 0.5 \dots 4.5 \text{ V} / V_S = 5 \pm 0.5 \text{ V}_{DC}$ |
| Performance | |
| Accuracy ^{1,2} | ≤±0.5 % FSO |
| Permissible load | 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$ |
| | 3-wire: $R_{min} = 10 k\Omega$ |
| Influence effects | supply: 0.05 % FSO / 10 V |
| | load: 0.05 % FSO / kΩ |
| Response time | 2-wire: ≤ 10 msec 3-wire: ≤ 3 msec |
| Measuring rate | 1 kHz |
| 1 accuracy according to IEC 60770 – lim 2 for pressure ranges \leq 160 mbar accura | nit point adjustment (non-linearity, hysteresis, repeatability) acy is ≤ ± 1% FSO |
| Thermal effects (Offset and Spar | n) / Permissible temperatures |
| Thermal error | ≤ ± 0.3 % FSO / 10 K in compensated range 0 70 °C |
| Permissible temperatures | Medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 85 °C |
| Electrical protection | |
| Short-circuit protection | permanent 3-wire ratiometric: none |
| Reverse polarity protection | no damage, but also no function |
| Electromagnetic compatibility | emission and immunity according to EN 61326 |
| Mechanical stability | |
| Vibration | 10 g, 25 Hz 2 kHz according to DIN EN 60068-2-6 |
| Shock | 100 g / 1 msec according to DIN EN 60068-2-27 |

18.601 G Technical Data



| 18.601 G | | - 🗌 - 🔲 - | - [] | | -[| |]-[] | - | | |
|--|--|-----------|------|------------|----|-----|------|---|--------|--------|
| Input [bar] | | | | | | | | | | |
| 0.10 1 | 1 0 0 0 | | | | | | | | | |
| 0.16 1 | 1 6 0 0 | | | | | | | | | |
| 0.25 | 2 5 0 0 4 0 0 0 | | | | | | | | | |
| 0.40 | 4 0 0 0 | | | | | | | | | |
| 0.60 | 6 0 0 0 | | | | | | | | | |
| 1.0 | 1 0 0 1 | | | | | | | | | |
| 1.6 2.5 | 1 6 0 1 2 5 0 1 | | | | | | | | | |
| 2.5 4.0 | 2 5 0 1 4 0 0 1 | | | | | | | | | |
| 4.0 6.0 | 6 0 0 1 | | | | | | | | | |
| customer | 1 0 0 1 1 6 0 1 2 5 0 1 4 0 0 1 6 0 0 1 9 9 9 9 | | | | | | | | | cons |
| Pressure | 0 0 0 0 0 | | | | | | | | | 0013 |
| gauge | R | | | | _ | | | | | |
| Output | | | | | | | | | | |
| 4 20 mA / 2-wire | | 1 | | | | | | | | |
| 0 10 V / 3-wire | | 3 | | | | | | | | |
| 0.5 4.5 V / 3-wire ratiometric | | R | | | | | | | | |
| customer | | 9 | | | | | | | | cons |
| Accuracy | | | | | | | | | | |
| 0.5 % FSO | | 5 | | | | | | | | |
| customer | | 9 | | | | | | | | cons |
| Electrical connection Male and female plug ISO 4400 | | | 1 (| 0 0 | | | | | | |
| Male plug M12x1 (4-pin), plastic | | | M | 0 0 | | | | | | |
| Cable outlet with 2 m PVC cable ² | | | TA | | | | | | | |
| customer | | | 9 9 | A 0 9 9 | | | | | | cons |
| Mechanical connection | | | | | | | | | | |
| G1/4" DIN 3852 | | | | | 3 | 00 | | | | |
| G1/4" EN 837 | | | | | 4 | 0 0 | | | | |
| 1/4" NPT | | | | | N | 4 0 | | | | |
| G1/2" EN 837 | | | | | 2 | 0 0 | | | | |
| customer | | | | | 9 | 99 | | | | cons |
| Seals | | | | | | | | | | |
| FKM | | | | | | | 1 | | | |
| customer | | | | _ | | | 9 | | | cons |
| Special version | | | | | | | | 0 | | 0 |
| standard customer | | | | | | | | 0 | 0 9 | 0 |
| customer | | | | | | | | 9 | 9 | 9 cons |

¹ for pressure ranges \leq 160 mbar accuracy is $\leq \pm$ 1 % FSO

² standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)

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OEM PRESSURE TRANSMITTER



26.600 G

OEM Pressure Transmitter Standard

Applications

- ▶ mechanical and plant engineering
- ► general industrial applications

Characteristics

- ► ceramic sensor
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
 0 ... 1 bar up to 0 ... 400 bar
- ▶ option: oil and grease free version



Technical Data

| Input pressure range | | | | | | | | | | | | | | | | |
|---|-----------------|------------------|------------------|----------------------|------------------------|----------|------------|--------------------|----------|----------------------|---------|-------|----------|--------|-----|-----|
| Nominal pressure gauge | [bar] | -10 ¹ | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 |
| Nominal pressure abs. | [bar] | - | 1 | 1.6 | 2.5 | 4 | 6 | 10 | 16 | 25 | 40 | 60 | 100 | 160 | 250 | 400 |
| Overpressure | [bar] | 3 | 3 | 5 | 5 | 12 | 12 | 20 | 50 | 50 | 120 | 120 | 200 | 400 | 400 | 650 |
| Burst pressure ≥ | [bar] | 4 | 4 | 7 | 7 | 15 | 15 | 25 | 70 | 70 | 150 | 150 | 250 | 500 | 500 | 700 |
| Vacuum resistance | | unlimit | ed | | | | | | | | | | | | | |
| ¹ for this pressure range accura | acy is ≤ 1 | 1 % FSO | IEC 607 | 70 | | | | | | | | | | | | |
| Output signal / Supply | | | | | | | | | | | | | | | | |
| Standard | | 2-wire: | | | 4 2 | 0 mA | | / V _S = | 832 | 2 Vpc | | | | | | |
| Options | | 3-wire: | | | 01 | 0 V | | $/V_{s} =$ | | | | | | | | |
| | | 3-wire | ratiome | etric: | | | | / V _s = | | | | | | | | |
| Performance | | | | | | | | | | | | | | | | |
| Accuracy ² | | ≤ ± 0.5 | % FS(| C | | | | | | | | | | | | |
| Permissible load | | 2-wire: | R _{max} | = [(V _s - | - V _{S min}) | / 0.02 / | Α] Ω | | 3-wire | : R _{min} : | = 10 kΩ | | | | | |
| Influence effects | | supply | : 0.05 | % FSC |) / 10 V | | - | | load: | 0.05 | % FSO | / kΩ | | | | |
| Response time | | 2-wire: | ≤ 10 n | nsec | | | | | 3-wire | : ≤ 3 ms | sec | | | | | |
| Measuring rate | | 1 kHz | | | | | | | | | | | | | | |
| ² accuracy according to IEC 60 |)770 — lin | nit point a | djustme | nt (non-l | inearity, | hysteres | sis, repea | atability) | | | | | | | | |
| Thermal effects (Offset a | nd Spa | n) / Perr | nissibl | e temp | erature | s | | | | | | | | | | |
| Thermal error | | $\leq \pm 0.3$ | % FS |) / 10 K | [| in com | pensat | ed rang | e: - | 25 85 | 5 °C | | | | | |
| Permissible temperatures | | mediur | n: -25 | 125 ° | С | electro | nics / e | environn | nent: -2 | 5 85 | °C | stora | age: -40 |) 85 ° | С | |
| Electrical protection | | | | | | | | | | | | | | | | |
| Short-circuit protection | | perma | nent | | | 3-wire | ratiom | etric: no | ne | | | | | | | |
| Reverse polarity protection | | no dan | nage, b | ut also | no func | tion | | | | | | | | | | |
| Electromagnetic protection | | emissi | on and | immun | ty acco | rding to | EN 61 | 326 | | | | | | | | |
| Mechanical stability | | | | | | | | | | | | | | | | |
| Vibration | | 10 g, 2 | 5 Hz | . 2 kHz | | accor | ding to | DIN EN | 60068 | -2-6 | | | | | | |
| Shock | | 500 g / | 1 mse | С | | | | DIN EN | | | | | | | | |

| Materials | | | | | | | |
|--|--|--|--|---|--|--|--|
| Pressure port / housing | stainless steel 1.4301 (3 | 04) | | | | | |
| Seals (media wetted) | FKM | , | on request | | | | |
| Diaphragm | ceramics Al ₂ O ₃ 96 % | | | | | | |
| Media wetted parts | pressure port, seals, dia | phragm | | | | | |
| Miscellaneous | ,, ooulo, ulu | | | | | | |
| Option oxygen application | for $P_{\rm ell} \leq 15$ har: O ring in | | M-approval); permissible | maximum values are | | | |
| | 15 bar / | 60° C and 10 bar / 90° C | | aximum values are 25 bar / 150° (| | | |
| Weight | approx. 120 g | (| | | | | |
| Current consumption | 2-wire: max. 25 mA 3-wire voltage: max. 7 m | | 3-wire ratiometric: typ. 1. nax. 20 mA) | 5 mA | | | |
| Long term stability | ≤ ± 0.3 % FSO / year at | reference conditions | , | | | | |
| Operational life | > 100 x 10 ⁶ cycles | | | | | | |
| CE-conformity | EMC Directive: 2004/108 | B/EC Pressur | e Equipment Directive: 9 | 7/23/EC (module A) ³ | | | |
| ³ This directive is only valid for devices | | | | . , | | | |
| Wiring diagrams | | | | | | | |
| 2-wire-system (current) | • + ∨s • - | 3-wire-system (voltag supply + supply - U signal + | ye) Vs Vs | | | | |
| Pin configuration | | | | | | | |
| | | Micro (contact | M12x1 (4-pin), | cable colours | | | |
| Electrical connection | ISO 4400 | distance 9.4 mm) | plastic | (DIN 47100) | | | |
| Supply + Supply – Signal + (for 3-wire) | 1 2 3 | 1 2 3 | 1 2 3 | wh (white) bn (brown) gn (green) | | | |
| Shield | ground pin | ground pin | 4 | ye/gn (yellow / green) | | | |
| Electrical connections (dimension | | <u> </u> | | <u> </u> | | | |
| | Pg7 Pg7 Pg7 Pg7 Pg7 Pg7 Pg7 Pg7 | | M12x1 Ø24 5W24 G1/4" | 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 | | | |
| ISO 4400 (IP 65) | Micro, contact distance 9.4 mm (IP 65) | M12x (IF | 1, 4-pin 2 67) | cable outlet with PVC-cable (IP 67) ^{4,5} | | | |
| * pressure range P _N = 400 bar: tota | | | | | | | |
| ⁴ standard: 2 m PVC cable without venti ⁵ different cable types and lengths available | lation tube (permissible temperature | erature: -5 70 °C) depends on kind of cable | | | | | |
| Mechanical connection (dimensi | ions in mm) | | | | | | |
| G1/4" | 61/4" | 00 1/4"NPT | | → G1/2" → | | | |
| | | | | | | | |

| 26.600 G | - | -[]-[|]-[| - 🗌 | |]-[| Ш |]-[|]-[| | | |
|--|--|-------|--------|-----|------------|-----|-----|-----|-----|-----|--------|----------|
| Input [bar] | | | | | | | | | | | | |
| 1.0 | 1 0 0 1 | | | | | | | _ | | | | |
| 1.6 | | | | | | | | | | | | |
| 2.5 | 1 6 0 1 2 5 0 1 4 0 0 1 | | | | | | | | | | | |
| 4.0 | 4 0 0 1 | | | | | | | | | | | |
| 6.0 | 6 0 0 1 | | | | | | | | | | | |
| 10 | 1 0 0 2 | | | | | | | | | | | |
| 16 | 1 6 0 2 | | | | | | | | | | | |
| 25 | 2 5 0 2 | | | | | | | | | | | |
| 40 | 2 5 0 2 4 0 0 2 6 0 0 2 | | | | | | | | | | | |
| 60 | 6 0 0 2 | | | | | | | | | | | |
| 100 | 1 0 0 3 | | | | | | | | | | | |
| 160 | 1 6 0 3 2 5 0 3 4 0 0 3 X 1 0 2 | | | | | | | | | | | |
| 250 | 2 5 0 3 4 0 0 3 | | | | | | | | | | | |
| 400 | 4 0 0 3 | | | | | | | | | | | |
| -1 0 ¹ | X 1 0 2 9 9 9 9 | | | | | | | | | | | |
| customer | 9999 | | | | | | | | | | | consult |
| Pressure | | | | | | | | | | | | |
| gauge | | R | | | | | | | | | | |
| absolute | | A | | | | | | | _ | | | |
| Output | | | | | | | | | | | | |
| 4 20 mA / 2-wire | | | | | | | | | | | | |
| 0 10 V / 3-wire | | 3 | 5 | | _ | | | | _ | | | |
| 0.5 4.5 V / 3-wire ratiometric | | F | 2 | | | | | | | | | |
| customer | | ç | , | | | | | | | | | consult |
| Accuracy 0.5 % FSO | | | E | | | | | | | | | |
| customer | | | 5 9 | | | | | | | | | consult |
| Electrical connection | _ | | 9 | | | | | | | | | Consult |
| Male and female plug ISO 4400 | | _ | _ | 1 | 0 0 | | | | | | | |
| Male and female plug Micro | | | | C | 1 0 | | | | | | | |
| Male plug M12x1 (4-pin), plastic | | | | M | 0 0 | | | | | | | |
| Cable outlet with PVC cable ² | | | | Т | | | | | | | | |
| customer | | | | 9 | A 0 9 9 | | | | | | | consult |
| Mechanical connection | | | | Ű | 0 0 | 1 | | | | | | Contourt |
| G1/4" DIN 3852 | | | | | | 3 | 00 |) | | | | |
| G1/4" EN 837 | | | | | | 4 | |) | | | | |
| 1/4" NPT | | | | | | N | 4 0 |) | | | | |
| G1/2" EN 837 | | | | | | 2 | 0 0 |) | | | | |
| customer | | | | | | 9 | 00 |) | | | | consult |
| Seal | | | | | | | | | | | | |
| FKM | | | | | | | | | 1 | | | |
| EPDM | | | | | | | | | 3 | | | |
| customer | | | | | | | | | 9 | | | consult |
| Special version | | | | | | | | | | | | |
| standard | | | | | | | | | (| 0 0 | 0 7 | |
| oxygen application ³ | | | | | | | | | 0 | 0 0 | 7 | |
| oil and grease free | | | | | | | | | 0 | 0 0 | 8 9 | |
| customer | | | | | | | | | ç | 9 | 9 | consult |
| Prices EXW Thierstein, excluding packag | e | | | | | | | | | | | |

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<sup>1</sup> for nominal pressure range -1 ... 0 bar accuracy is 1 % FSO
 <sup>2</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
 <sup>3</sup> oxygen application with FKM seal up to 25 bar or with EPDM seal up to 15 bar posible

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# 114 OEM PRESSURE TRANSMITTER



# 30.600 G

### OEM Pressure Transmitter Low Cost

#### Applications

- mechanical and plant engineering
- ► general industrial applications

#### Characteristics

- ▶ ceramic sensor
- ▶ accuracy 1 % FSO according to IEC 60770
- nominal pressure ranges from 0 ... 1.6 bar up to 0 ... 250 bar

#### Technical Data

| Input pressure range   |       |           |     |    |    |    |    |    |     |     |     |     |     |
|------------------------|-------|-----------|-----|----|----|----|----|----|-----|-----|-----|-----|-----|
| Nominal pressure gauge | [bar] | 1.6       | 2.5 | 4  | 6  | 10 | 16 | 25 | 40  | 60  | 100 | 160 | 250 |
| Overpressure           | [bar] | 5         | 5   | 12 | 12 | 20 | 50 | 50 | 120 | 120 | 200 | 400 | 400 |
| Burst pressure ≥       | [bar] | 7         | 7   | 15 | 15 | 25 | 70 | 70 | 150 | 150 | 250 | 500 | 500 |
| Vacuum resistance      |       | unlimited | d   |    |    |    |    |    |     |     |     |     |     |

#### Output signal / Supply

| output orginal / ouppij                            |                                                                            |
|----------------------------------------------------|----------------------------------------------------------------------------|
| Standard                                           | 2-wire: 4 20 mA / V <sub>s</sub> = 8 32 V <sub>DC</sub>                    |
| Options                                            | 3-wire: 010 V / V <sub>S</sub> = 14 30 V <sub>DC</sub>                     |
|                                                    | 3-wire ratiometric: $V_{Sig} = 0.5 \dots 4.5 V / V_S = 5 \pm 0.5 V_{DC}$   |
| Performance                                        |                                                                            |
| Accuracy <sup>1</sup>                              | ≤ ± 1 % FSO                                                                |
| Permissible load                                   | 2-wire: $R_{max} = [(V_S - V_{S min}) / 0.02 A] \Omega$                    |
|                                                    | 3-wire: $R_{min} = 10 \text{ k}\Omega$                                     |
| Influence effects                                  | supply: 0.05 % FSO / 10 V                                                  |
|                                                    | load: 0.05 % FSO / kΩ                                                      |
| Response time                                      | 2-wire: ≤ 10 msec                                                          |
|                                                    | 3-wire: ≤ 3 msec                                                           |
| Measuring rate                                     | 1 kHz                                                                      |
| <sup>1</sup> accuracy according to IEC 60770 – lin | nit point adjustment (non-linearity, hysteresis, repeatability)            |
| Thermal effects (Offset and Span                   | n) / Permissible temperatures                                              |
| Thermal error                                      | ≤ ± 0.5 % FSO / 10 K (typ.) in compensated range -25 85 °C                 |
| Permissible temperatures                           | medium: -25 125 °C electronics / environment: -25 85 °C storage: -40 85 °C |
| Electrical protection                              |                                                                            |
| Short-circuit protection                           | permanent 3-wire ratiometric: none                                         |
| Reverse polarity protection                        | no damage, but also no function                                            |
| Electromagnetic protection                         | emission and immunity according to EN 61326                                |
| Mechanical stability                               |                                                                            |
| Vibration                                          | 10 g, 25 Hz 2 kHz according to DIN EN 60068-2-6                            |
| Shock                                              | 500 g / 1 msec         according to DIN EN 60068-2-27                      |
|                                                    |                                                                            |

# 30.600 G Technical Data

| Pressure port / housing                                                                                     |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                             | stainless steel 1.4301 (                                                                                                 |                                                                                   |                                                                |                                                                                                                                                        |
| Seals (media wetted)                                                                                        | FKM                                                                                                                      | other                                                                             | s on request                                                   |                                                                                                                                                        |
| Diaphragm                                                                                                   | ceramics Al <sub>2</sub> O <sub>3</sub> 96 %                                                                             |                                                                                   |                                                                |                                                                                                                                                        |
| Media wetted parts                                                                                          | pressure port, seals, di                                                                                                 | aphragm                                                                           |                                                                |                                                                                                                                                        |
| Miscellaneous                                                                                               |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
| Weight                                                                                                      | approx. 120 g                                                                                                            |                                                                                   |                                                                |                                                                                                                                                        |
| Current consumption                                                                                         | 2-wire: max. 25 mA                                                                                                       | 3-wire                                                                            | e ratiometric: typ. 1.5 mA                                     |                                                                                                                                                        |
| -                                                                                                           |                                                                                                                          | mA (short circuit current                                                         | :: max. 20 mA)                                                 |                                                                                                                                                        |
| Long term stability                                                                                         | ≤ ± 0.3 % FSO / year a                                                                                                   | t reference conditions                                                            |                                                                |                                                                                                                                                        |
| Operational life                                                                                            | > 100 x 10 <sup>6</sup> cycles                                                                                           |                                                                                   |                                                                | 2                                                                                                                                                      |
| CE-conformity                                                                                               | EMC Directive: 2004/10                                                                                                   |                                                                                   | sure Equipment Directive                                       | : 97/23/EC (module A) <sup>2</sup>                                                                                                                     |
| <sup>2</sup> This directive is only valid for devices                                                       | with maximum permissible o                                                                                               | verpressure > 200 bar                                                             |                                                                |                                                                                                                                                        |
| Wiring diagrams                                                                                             |                                                                                                                          |                                                                                   |                                                                |                                                                                                                                                        |
| 2-wire-system (current)                                                                                     |                                                                                                                          | 3-wire-system (v                                                                  | oltage)                                                        |                                                                                                                                                        |
| p A A A A A A A A A A A A A A A A A A A                                                                     | • +<br>∨s<br>• -                                                                                                         | p supply +                                                                        |                                                                |                                                                                                                                                        |
| <u> </u>                                                                                                    |                                                                                                                          |                                                                                   | ÷                                                              |                                                                                                                                                        |
| Pin configuration                                                                                           | 1                                                                                                                        |                                                                                   |                                                                |                                                                                                                                                        |
| Electrical connection                                                                                       | ISO 4400                                                                                                                 | Micro (contact<br>distance 9.4 mm)                                                | M12x1 (4-pin),                                                 | cable colours                                                                                                                                          |
| Supply +                                                                                                    | 1                                                                                                                        | 1                                                                                 | plastic<br>1                                                   | (DIN 47100)<br>wh (white)                                                                                                                              |
| Supply –                                                                                                    | 2                                                                                                                        | 2                                                                                 | 2                                                              | bn (brown)                                                                                                                                             |
| Signal + (for 3-wire)                                                                                       | 3                                                                                                                        | 3                                                                                 | 3                                                              | gn (green)                                                                                                                                             |
| Shield                                                                                                      | ground pin                                                                                                               | ground pin                                                                        | 4                                                              | ye/gn (yellow / green)                                                                                                                                 |
| Electrical connections (dimension                                                                           | ons in mm)                                                                                                               |                                                                                   | ·                                                              |                                                                                                                                                        |
|                                                                                                             | N Pg7                                                                                                                    |                                                                                   |                                                                | Ø4,3                                                                                                                                                   |
| 224<br>5W24                                                                                                 | 90<br>90<br>1<br>1                                                                                                       |                                                                                   | - Ø24<br>- Ø24<br>- SW24<br>- G1/4*                            | ₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩<br>₩                                                                                     |
| 1<br>3<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1            | B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B<br>B                              | 2 22<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>27<br>2 | - Ø24                                                          | S<br>S<br>SW24<br>SW24<br>C<br>G<br>G<br>G<br>G<br>I/4"<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C |
| 1<br>3<br>1<br>2<br>1<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5  | SW24<br>SW24<br>J<br>J<br>Micro, contact-<br>distance 9.4 mm (IP 65)                                                     | W                                                                                 | - Ø24<br>- SW24<br>- G1/4*                                     | 5 SW24<br>5 SW24<br>5 SW24<br>6 J/4"<br>0                                                                                                              |
| 1<br>3<br>1<br>2<br>1<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5<br>5  | Nicro, contact-<br>distance 9.4 mm (IP 65)                                                                               | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>G<br>G<br>G<br>I/4"<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C<br>C          |
| ISO 4400<br>(IP 65)<br>3 standard: 2 m PVC cable without vent                                               | 1<br>3<br>Wicro, contact-<br>distance 9.4 mm (IP 65)<br>tilation tube (permissible temp<br>lable, permissible temperatur | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S                                           |
| ISO 4400<br>(IP 65)<br>3 standard: 2 m PVC cable without vent.<br>4 different cable types and lengths avail | 1<br>3<br>Wicro, contact-<br>distance 9.4 mm (IP 65)<br>tilation tube (permissible temp<br>lable, permissible temperatur | 2 2<br>7 1 1 -                                                                    | - Ø24<br>- SW24<br>- G1/4*<br>2<br>3<br>12x1, 4-pin<br>(IP 67) | S<br>S<br>W24<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S<br>S                                           |

| 30.600 G                                                    | -                                                    | -0-0 | - ] | - 🗌 |                   | -[ |   |   | -2- | ]- | ·П | T      |   |          |
|-------------------------------------------------------------|------------------------------------------------------|------|-----|-----|-------------------|----|---|---|-----|----|----|--------|---|----------|
| Input [bar]                                                 |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 1.6                                                         | 1 6 0 1                                              |      |     |     |                   |    |   |   | _   |    |    |        |   |          |
| 2.5                                                         | 2 5 0 1                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 4.0                                                         | 2 5 0 1<br>4 0 0 1                                   |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 6.0                                                         | 6 0 0 1                                              |      |     |     |                   |    |   |   |     |    |    |        | T |          |
| 10                                                          |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 16                                                          | 1 6 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        | T |          |
| 25                                                          | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 40                                                          | 4 0 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 60                                                          | 6 0 0 2                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 100                                                         | 1 0 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 160                                                         | 1 6 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 250                                                         | 2 5 0 3                                              |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    | 2 5 0 3<br>9 9 9 9                                   |      |     |     |                   |    |   |   |     |    |    |        |   | consult  |
| Pressure                                                    |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| gauge                                                       |                                                      | R    |     |     |                   |    |   |   |     |    |    |        |   |          |
| Output                                                      |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 4 20 mA / 2-wire                                            |                                                      | 1    |     |     |                   |    |   |   |     |    |    |        |   |          |
| 0 10 V / 3-wire                                             |                                                      | 3    |     |     |                   |    |   |   |     |    |    |        |   |          |
| 0.5 4.5 V / 3-wire ratiometric                              |                                                      | R    |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      | 9    |     |     |                   |    |   |   |     |    |    |        | _ | consult  |
| Accuracy                                                    |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| 1.0 % FSO                                                   |                                                      |      | 8   |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      |      | 9   | _   |                   |    |   |   |     |    | _  |        | _ | consult  |
| Electrical connection<br>Male and female plug ISO 4400      |                                                      |      |     | 4   | 0 0               |    |   |   |     |    |    |        |   |          |
| Male and female plug ISO 4400<br>Male and female plug Micro |                                                      |      |     |     | 0 0               |    |   |   |     |    |    |        |   |          |
| Male plug M12x1 (4-pin), plastic                            |                                                      |      |     | C   | 10                |    |   |   |     |    |    |        |   |          |
| Cable outlet with PVC cable 1                               |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |
| customer                                                    |                                                      |      |     | 9   | 0 0<br>A 0<br>9 9 |    |   |   |     |    |    |        |   | consult  |
| Mechanical connection                                       |                                                      |      |     | 3   | 5 5               |    |   |   |     |    |    |        |   | Consult  |
| G1/4" DIN 3852                                              |                                                      |      | _   | _   | _                 | 3  | 0 | 0 | _   |    |    |        |   |          |
| 1/4" NPT                                                    |                                                      |      |     |     |                   | N  | 4 | 0 |     |    |    |        |   |          |
| customer                                                    |                                                      |      |     |     |                   | 9  |   | 9 |     |    |    |        |   | consult  |
| Seal                                                        |                                                      |      |     |     |                   | Ű  |   |   |     |    |    |        |   | Contourt |
| FKM                                                         |                                                      |      |     |     |                   |    |   |   |     | 1  |    |        |   |          |
| customer                                                    |                                                      |      |     |     |                   |    |   |   |     | 9  |    |        |   | consult  |
| Special version                                             |                                                      |      | _   |     | _                 |    |   |   |     |    |    |        |   |          |
| standard                                                    |                                                      |      |     |     |                   |    |   |   |     |    | 0  | 0      | 0 |          |
| customer                                                    |                                                      |      |     |     |                   |    |   |   |     |    | 9  | 0<br>9 | 9 | consult  |
|                                                             |                                                      |      |     |     |                   |    |   |   |     |    |    |        |   |          |

 $^{1}$  standard: 2 m PVC cable without ventilation tube (permissible temperature: -5  $\ldots$  70  $^{\circ}C)$ 

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# OEM PRESSURE TRANSMITTER



# 17.609 G

## **OEM Pressure Transmitter**

#### Application

▶ refrigeration

Characteristics

- ▶ stainless steel sensor, welded
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
  0 ... 6 bar up to 0 ... 60 bar
  -1 ... 6 bar up to -1 ... 60 bar

#### Technical Data

| Pressure ranges                           |           |                              |                                            |                       |                              |               |          |
|-------------------------------------------|-----------|------------------------------|--------------------------------------------|-----------------------|------------------------------|---------------|----------|
| Nominal pressure gauge                    | [bar]     | 6                            | 10                                         | 16                    | 25                           | 40            | 60       |
| Overpressure                              | [bar]     | 14                           | 35                                         | 35                    | 70                           | 140           | 140      |
| Burst pressure ≥                          | [bar]     | 28                           | 70                                         | 70                    | 140                          | 280           | 280      |
| Vacuum resistance                         |           | unlimited                    |                                            | 1                     | 1                            |               |          |
| Vacuum ranges                             |           |                              |                                            |                       |                              |               |          |
| Nominal pressure gauge                    | [bar]     | -1 6                         | -1 10                                      | -1 16                 | -1 25                        | -1 40         | -1 60    |
| Overpressure                              | [bar]     | 14                           | 35                                         | 35                    | 70                           | 140           | 140      |
| Burst pressure                            | [bar]     | 28                           | 70                                         | 70                    | 140                          | 280           | 280      |
| Output signal / Supply                    |           |                              |                                            | ·                     |                              |               |          |
| Standard                                  |           | 2-wire:                      | 4 20 mA                                    | / V <sub>S</sub> = 8  | 32 V <sub>DC</sub>           |               |          |
| Options 3-wire                            |           | 3-wire:                      | 0 10 V                                     | / V <sub>S</sub> = 14 | 30 V <sub>DC</sub>           |               |          |
|                                           |           | 3-wire ratiomet              | ric: V <sub>Sig</sub> = 0.5                | $.4.5 V / V_s = 5$    | $\pm 0.5 V_{DC}$             |               |          |
| Performance                               |           |                              |                                            |                       |                              |               |          |
| Accuracy <sup>1</sup>                     |           | ≤ ± 0.5 % FSO                |                                            |                       |                              |               |          |
| Permissible load                          |           | 2-wire: R <sub>max</sub> = [ | (V <sub>s</sub> – V <sub>s</sub> min) / 0. | 02 A] Ω               | 3-wire: R <sub>min</sub> = 1 | 0 kΩ          |          |
| Influence effects                         |           | supply: 0.05 %               | FSO / 10 V                                 |                       | load: 0.05 % F               | SO / kΩ       |          |
| Response time                             |           | 2-wire: ≤ 10 ms              | ec                                         |                       | 3-wire: ≤ 3 mse              | ec .          |          |
| Measuring rate                            |           | 1 kHz                        |                                            |                       |                              |               |          |
| <sup>1</sup> accuracy according to IEC 60 | 770 – lin | nit point adjustment         | (non-linearity, hyst                       | eresis, repeatability | 1)                           |               |          |
| Thermal effects (Offset ar                | nd Spa    | n) / Permissible             | temperatures                               |                       |                              |               |          |
| Thermal error                             |           | ≤ ± 0.3 % FSO                | / 10 K in (                                | compensated rar       | nge 070                      | °C            |          |
| Permissible temperatures                  |           | medium: -40                  | 125 °C ele                                 | ectronics / enviror   | nment: -40 85                | °C storage: - | 40 85 °C |
| Electrical protection                     |           |                              |                                            |                       |                              |               |          |
| Short-circuit protection                  |           | permanent                    | 3-1                                        | vire ratiometric: r   | none                         |               |          |
| Reverse polarity protection               |           | no damage, bu                | t also no function                         |                       |                              |               |          |
| Electromagnetic protection                |           | emission and in              | nmunity accordin                           | g to EN 61326         |                              |               |          |
| Mechanical stability                      |           |                              |                                            |                       |                              |               |          |
| Vibration                                 |           | 20 g, 25 Hz                  | 2 kHz ac                                   | cording to DIN E      | N 60068-2-6                  |               |          |
| Shock                                     |           | 500 g / 1 msec               | ac                                         | cording to DIN E      | N 60068-2-27                 |               |          |

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| Pressure port<br>Housing<br>Seal of sensor<br>Diaphragm<br>Media wetted parts<br><b>Miscellaneous</b><br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br><b>Wiring diagrams</b><br>2-wire-system (current)<br>P<br><br>Pin configuration<br>Electrical connection | stainless steel 1.4571 (316<br>stainless steel 1.4301 (304<br>none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E | )<br>)<br>3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s                                                    |                    |                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------|
| Housing<br>Seal of sensor<br>Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>$p = \frac{supply + b}{supply - b}$<br>Pin configuration<br>Electrical connection  | stainless steel 1.4301 (304<br>none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                | )<br>3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -  | e)<br>$V_{s}$      |                                                      |
| Seal of sensor<br>Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>supply<br>Pin configuration<br>Electrical connection                                     | none (welded)<br>stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                               | )<br>3-wire rat<br>(short circuit current: ma<br>ierence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply - | e)<br>$V_{s}$      |                                                      |
| Diaphragm<br>Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>Pin configuration<br>Electrical connection                                                                 | stainless steel 1.4542 (630<br>pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                | 3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>:C<br>3-wire-system (voltage<br>supply +<br>supply -      | e)<br>$V_{s}$      |                                                      |
| Media wetted parts<br>Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br><br>Pin configuration<br>Electrical connection                                                                          | pressure port, diaphragm<br>7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>8</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                               | 3-wire rat<br>(short circuit current: ma<br>erence conditions<br>s<br>:C<br>3-wire-system (voltage<br>supply +<br>supply -      | e)<br>$V_{s}$      |                                                      |
| Miscellaneous<br>Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>P                                                                                                                                             | 7/16"-20 UNF<br>approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Mechanical connection<br>Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>supply +<br>P in configuration<br>Electrical connection                                                                                                        | approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Weight<br>Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P                                                                                                                                                                                            | approx. 120 g<br>2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                           | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Current consumption<br>Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P A A A A A A A A A A A A A A A A A A A                                                                                                                                                                | 2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                            | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Long term stability<br>Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>P<br>p                                                                                                                                                                                                                        | 3-wire voltage: max. 7 mA<br>$\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                  | (short circuit current: ma<br>erence conditions<br>s<br>C<br>3-wire-system (voltage<br>supply +<br>supply -                     | e)<br>$V_{s}$      |                                                      |
| Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br>supply +<br>(current)<br>P<br>P<br>P<br>n configuration<br>Electrical connection                                                                                                                                                                | $\leq \pm 0.3 \%$ FSO / year at ref<br>> 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                                               | 3-wire-system (voltage                                                                                                          | e) $V_{s}$ $-$     |                                                      |
| Operational life<br>CE-conformity<br>Wiring diagrams<br>2-wire-system (current)<br>p<br>supply +<br>(current)<br>P<br>P<br>P<br>n configuration<br>Electrical connection                                                                                                                                                                | > 100 x 10 <sup>6</sup> pressure cycles<br>EMC Directive: 2004/108/E                                                                                                                                                                                                                                                                      | S<br>C<br>3-wire-system (voltage<br>p<br>supply +<br>supply -                                                                   | v <sub>s</sub>     |                                                      |
| CE-conformity<br>Wiring diagrams<br>2-wire-system (current)                                                                                                                                                                                                                                                                             | EMC Directive: 2004/108/E                                                                                                                                                                                                                                                                                                                 | 3-wire-system (voltage                                                                                                          | v <sub>s</sub>     |                                                      |
| Wiring diagrams<br>2-wire-system (current)                                                                                                                                                                                                                                                                                              | -• +                                                                                                                                                                                                                                                                                                                                      | 3-wire-system (voltage                                                                                                          | v <sub>s</sub>     |                                                      |
| 2-wire-system (current)  P Supply + Supply - P in configuration Electrical connection                                                                                                                                                                                                                                                   | -• +<br>Vs<br>-• -                                                                                                                                                                                                                                                                                                                        | p supply + supply -                                                                                                             | v <sub>s</sub>     |                                                      |
| Pin configuration<br>Electrical connection                                                                                                                                                                                                                                                                                              | -• +<br>V <sub>S</sub><br>-• -                                                                                                                                                                                                                                                                                                            | p supply + supply -                                                                                                             | v <sub>s</sub>     |                                                      |
| Electrical connection                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                 | - <u>-</u>         |                                                      |
|                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                 |                    |                                                      |
|                                                                                                                                                                                                                                                                                                                                         | ISO 4400                                                                                                                                                                                                                                                                                                                                  | Micro (contact                                                                                                                  | M12x1 (4-pin),     | cable colours                                        |
| 0                                                                                                                                                                                                                                                                                                                                       | 150 4400                                                                                                                                                                                                                                                                                                                                  | distance 9.4 mm)                                                                                                                | plastic            | (DIN 47100)                                          |
| Supply +                                                                                                                                                                                                                                                                                                                                | 1                                                                                                                                                                                                                                                                                                                                         | 1                                                                                                                               | 1                  | wh (white)                                           |
| Supply –                                                                                                                                                                                                                                                                                                                                | 2                                                                                                                                                                                                                                                                                                                                         | 2                                                                                                                               | 2                  | bn (brown)                                           |
| Signal + (for 3-wire)                                                                                                                                                                                                                                                                                                                   | 3                                                                                                                                                                                                                                                                                                                                         | 3                                                                                                                               | 3                  | gn (green)                                           |
| Shield<br>Dimensions (in mm)                                                                                                                                                                                                                                                                                                            | ground pin                                                                                                                                                                                                                                                                                                                                | ground pin                                                                                                                      | 4                  | ye/gn (yellow / green)                               |
|                                                                                                                                                                                                                                                                                                                                         | Ca.35,5                                                                                                                                                                                                                                                                                                                                   | 13,5                                                                                                                            | M12x1              | - Ø4,3<br>- Ø24<br>- SW24<br>- 7/16 UNF              |
| 2<br>ISO 4400<br>(IP 65)<br>standard: 2 m PVC cable without ven<br>different cable types and lengths avai                                                                                                                                                                                                                               | 2<br>Micro, contact<br>distance 9.4 mm (IP 65)                                                                                                                                                                                                                                                                                            | (11                                                                                                                             | x1, 4-pin<br>P 67) | cable outlet with<br>PVC-cable (IP 67) <sup>23</sup> |

| 17.609 G                         |                               |   | - 🗌 - | - 🗌 | Τ   | ]-∏ |            | ]-[]   | - 🗌 |     | ]       |
|----------------------------------|-------------------------------|---|-------|-----|-----|-----|------------|--------|-----|-----|---------|
|                                  |                               |   |       |     |     |     |            |        |     |     |         |
| Input [bar]                      |                               |   |       |     |     |     |            |        |     |     |         |
| 6                                | 6 0 0 1                       |   |       |     |     |     |            |        |     |     |         |
| 10                               | 1 0 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 16                               | 1 6 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 25                               | 2 5 0 2                       |   |       |     |     |     |            |        |     |     |         |
| 40                               | 1 6 0 2<br>2 5 0 2<br>4 0 0 2 |   |       |     |     |     |            |        |     |     |         |
| 60                               | 6 0 0 2                       |   |       |     |     |     |            |        |     |     |         |
| -1 6                             | V 6 0 2                       |   |       |     |     |     |            |        |     |     |         |
| -1 10                            | V 1 0 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 16                            | V 1 6 3<br>V 2 5 3            |   |       |     |     |     |            |        |     |     |         |
| -1 25                            | V 2 5 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 40                            | V 4 0 3                       |   |       |     |     |     |            |        |     |     |         |
| -1 60                            | V 6 0 3                       |   |       |     |     |     |            |        |     |     |         |
| customer                         | 9999                          |   |       |     |     |     |            |        |     |     | consult |
| Pressure                         |                               |   |       |     |     |     |            |        |     |     |         |
| gauge                            |                               | R |       |     |     |     |            |        |     |     |         |
| Output                           |                               |   |       |     |     |     |            |        |     |     |         |
| 4 20 mA / 2-wire                 |                               | 1 |       |     |     |     |            |        |     |     |         |
| 0 10 V / 3-wire                  |                               | 3 |       |     |     |     |            |        |     |     |         |
| 0.5 4.5 V / 3-wire ratiometric   |                               | R |       |     |     |     |            |        |     |     |         |
| Accuracy                         |                               | I |       |     |     |     |            |        |     |     |         |
| 0.5 % FSO                        |                               |   | 5     |     |     |     |            |        |     |     |         |
| customer                         |                               |   | 9     |     |     |     |            |        |     |     | consult |
| Electrical connection            |                               |   |       |     |     |     |            |        |     |     |         |
| Male and female plug ISO 4400    |                               |   |       | 1 ( | 0 0 |     |            |        |     |     |         |
| Male and female plug Micro       |                               |   |       |     | 1 0 |     |            |        |     |     |         |
| Male plug M12x1 (4-pin), plastic |                               |   |       |     | 0 0 |     |            |        |     |     |         |
| Cable outlet with PVC-cable      |                               |   |       |     | A 0 |     |            |        |     |     |         |
| customer                         |                               |   |       | 9 9 | 9 9 |     |            |        |     |     | consult |
| Mechanical connection / Seal     |                               |   |       |     |     |     |            |        |     |     |         |
| 7/16"-20 UNF                     |                               |   |       |     |     | U   | 0 0        | 2      |     |     |         |
| customer                         |                               |   |       |     |     | 9 9 | 0 0<br>9 9 | 2<br>9 |     |     | consult |
| Special version                  |                               | _ |       |     | _   |     |            |        |     |     |         |
| standard                         |                               |   |       |     |     |     |            |        | 0   | 0 0 |         |
| customer                         |                               |   |       |     |     |     |            |        | 9   | 9 9 | consult |
|                                  |                               |   |       |     |     |     |            |        | 5   |     |         |

 $^{1}$  standard: 2 m PVC cable without ventilation tube (permissible temperatur: -5 ... 70  $^{\circ}\text{C})$ 

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# 120 OEM PRESSURE TRANSMITTER



# 17.600 G

## OEM Pressure Transmitter Heavy Duty

#### Applications:

- ▶ mobile hydraulic
- presses
- general mechanical engineering
- oxygen application

#### Characteristics:

- ▶ stainless steel sensor, welded
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
   6 bor up to 0
  - 0 ... 6 bar up to 0 ... 600 bar

#### Technical Data

| Input pressure range   |       |          |    |    |     |     |     |     |     |       |       |       |
|------------------------|-------|----------|----|----|-----|-----|-----|-----|-----|-------|-------|-------|
| Nominal pressure gauge | [bar] | 6        | 10 | 16 | 25  | 40  | 60  | 100 | 160 | 250   | 400   | 600   |
| Overpressure (static)  | [bar] | 14       | 35 | 35 | 70  | 140 | 140 | 350 | 350 | 700   | 1 200 | 1 200 |
| Burst pressure ≥       | [bar] | 28       | 70 | 70 | 140 | 280 | 280 | 700 | 700 | 1 400 | 1 500 | 1 500 |
| Vacuum resistance      |       | unlimite | d  |    |     |     |     |     |     |       |       |       |

| Output signal / Supply                            |                                         |                                                                              |
|---------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------------|
| Standard                                          | 2-wire: 4 20 m                          | A / $V_{\rm S} = 8 \dots 32 V_{\rm DC}$                                      |
| Options                                           | 3-wire: 0 10 V                          | / V <sub>S</sub> = 14 30 V <sub>DC</sub>                                     |
| -                                                 | 3-wire ratiometric: $V_{Sig} = 0.5$     | $\dots 4.5 \text{ V} / \text{V}_{\text{S}} = 5 \pm 0.5 \text{V}_{\text{DC}}$ |
| Performance                                       |                                         |                                                                              |
| Accuracy <sup>1</sup>                             | ≤±0.5 % FSO                             |                                                                              |
| Permissible load                                  | 2-wire: $R_{max} = [(V_S - V_S n)]$     | nin) / 0.02 A] Ω                                                             |
|                                                   | 3-wire: $R_{min} = 10 k\Omega$          |                                                                              |
| Influence effects                                 | supply: 0.05 % FSO / 10 V               |                                                                              |
|                                                   | load: 0.05 % FSO / kΩ                   |                                                                              |
| Response time                                     | 2-wire: ≤ 10 msec                       | 3-wire: ≤ 3 msec                                                             |
| Measuring rate                                    | 1 kHz                                   |                                                                              |
| <sup>1</sup> accuracy according to IEC 60770 - li | nit point adjustment (non-linearity, hy | vsteresis, repeatability)                                                    |
| Thermal effects (Offset and Spa                   | n) / Permissible temperatures           |                                                                              |
| Thermal error                                     | ≤ ± 0.3 % FSO / 10 K in                 | n compensated range 0 70 °C                                                  |
| Permissible temperatures                          | medium: -40 125 °C e                    | electronics / environment: -40 85 °C storage: -40 85 °C                      |
| Electrical protection                             |                                         |                                                                              |
| Short-circuit protection                          | permanent 3                             | B-wire ratiometric: none                                                     |
| Reverse polarity protection                       | no damage, but also no function         | n                                                                            |
| Electromagnetic protection                        | emission and immunity accord            | ing to EN 61326                                                              |
| Mechanical stability                              |                                         |                                                                              |
| Vibration                                         | 20 g, 25 Hz 2 kHz a                     | according to DIN EN 60068-2-6                                                |
| Shock                                             | 500 g / 1 msec a                        | according to DIN EN 60068-2-27                                               |

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# 17.600 G Technical Data

| Materials                                                               |                                                                                                                                    |                              |                                      |                                                        |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------|--------------------------------------------------------|
| Pressure port                                                           | stainless steel 1.4571 (31                                                                                                         | 6Ti)                         |                                      |                                                        |
| Housing                                                                 | stainless steel 1.4301 (30                                                                                                         |                              |                                      |                                                        |
| Seal of pressure port                                                   | FKM: G 1/4" DIN 3852                                                                                                               | others on                    | request                              |                                                        |
| Seal of sensor                                                          | none (welded)                                                                                                                      |                              |                                      |                                                        |
| Diaphragm                                                               | stainless steel 1.4542 (63)                                                                                                        | 0)                           |                                      |                                                        |
|                                                                         |                                                                                                                                    | ,                            |                                      |                                                        |
| Media wetted parts                                                      | pressure port, seal of pres                                                                                                        | sure port, diaphragm         |                                      |                                                        |
| Miscellaneous                                                           |                                                                                                                                    |                              |                                      |                                                        |
| Weight                                                                  | approx. 120 g                                                                                                                      |                              |                                      |                                                        |
| Current consumption                                                     | 2-wire: max. 25 mA<br>3-wire voltage: max. 7 mA                                                                                    |                              | ometric: typ. 3 mA<br>ax. 20 mA)     |                                                        |
| Long term stability                                                     | ≤ ± 0.3 % FSO / year                                                                                                               |                              |                                      |                                                        |
| Operational life                                                        | > 100 x 10 <sup>6</sup> pressure cycle                                                                                             | es                           |                                      |                                                        |
| CE-conformity                                                           | EMC Directive: 2004/108/                                                                                                           | EC Pressure I                | Equipment Directive: 97/             | 23/EC (module A) <sup>2</sup>                          |
| <sup>2</sup> This directive is only valid for devices                   | s with maximum permissible ove                                                                                                     | erpressure > 200 bar         |                                      |                                                        |
| Wiring diagrams                                                         |                                                                                                                                    |                              |                                      |                                                        |
| 2-wire-system (current)                                                 |                                                                                                                                    | 3-wire-system (voltage       | <i>ه</i> )                           |                                                        |
| p supply + A supply -                                                   |                                                                                                                                    | p supply + supply - signal + |                                      |                                                        |
| Pin configuration                                                       |                                                                                                                                    | <b>'</b>                     |                                      |                                                        |
| Electrical connection                                                   | ISO 4400                                                                                                                           | Micro (contact               | M12x1 (4-pin),                       | cable colour                                           |
| Electrical connection                                                   | 150 4400                                                                                                                           | distance 9.4 mm)             | plastic                              | (DIN 47100)                                            |
| Supply +                                                                | 1                                                                                                                                  | 1                            | 1                                    | wh (white)                                             |
| Supply –                                                                | 2                                                                                                                                  | 2                            | 2                                    | bn (brown)                                             |
| Signal + (for 3-wire)                                                   | 3                                                                                                                                  | 3                            | 3                                    | gn (green)                                             |
| Shield                                                                  | ground pin                                                                                                                         | ground pin                   | 4                                    | ye/gn (yellow / green)                                 |
| Electrical connections (dimens                                          | ions in mm)                                                                                                                        |                              |                                      |                                                        |
| 1<br>3<br>2<br>2                                                        | Pg7<br>Pg7<br>024<br>SW24<br>1<br>3<br>2<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0<br>0 |                              | - M12x1<br>- Ø24<br>- Ø24<br>- G1/4* | 5W24                                                   |
| ISO 4400<br>(IP 65)<br><sup>3</sup> standard: 2 m PVC cable without ven | Micro, contact<br>distance 9.4 mm (IP 65)                                                                                          | (IF                          | (1, 4-pin<br>2 67)                   | cable outlet with 2 m PVC-cable (IP 67) <sup>3,4</sup> |
| <sup>4</sup> different cable types and lengths ava                      | ilable, permissible temperature                                                                                                    | depends on kind of cable     |                                      |                                                        |
| Mechanical connection (dimens                                           | sions in mm)                                                                                                                       |                              |                                      |                                                        |
|                                                                         |                                                                                                                                    |                              | 4                                    |                                                        |
| G1/4"                                                                   | G1/4"                                                                                                                              | 1/4"NPT-                     |                                      |                                                        |

| 17.600 G                                     | -                                                    | -0-0-0 | ]-[            | Щ-О                                                                                               | -             |         |
|----------------------------------------------|------------------------------------------------------|--------|----------------|---------------------------------------------------------------------------------------------------|---------------|---------|
| Input [bar]                                  |                                                      |        |                |                                                                                                   |               |         |
| 6                                            | 6 0 0 1                                              |        |                |                                                                                                   |               |         |
| 10                                           | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |        |                |                                                                                                   |               |         |
| 16                                           | 1 6 0 2<br>2 5 0 2<br>4 0 0 2                        |        |                |                                                                                                   |               |         |
| 25                                           | 2 5 0 2                                              |        |                |                                                                                                   |               |         |
| 40                                           | 4 0 0 2                                              |        |                |                                                                                                   |               |         |
| 60                                           | 6 0 0 2                                              |        |                |                                                                                                   |               |         |
| 100                                          | 1003                                                 |        |                |                                                                                                   |               |         |
| 160                                          | 1 6 0 3                                              |        |                |                                                                                                   |               |         |
| 250                                          | 2 5 0 3                                              |        |                |                                                                                                   |               |         |
| 400                                          | 4 0 0 3<br>6 0 0 3                                   |        |                |                                                                                                   |               |         |
| 600                                          | 6 0 0 3<br>9 9 9 9 9                                 |        |                |                                                                                                   |               |         |
| customer                                     | 9999                                                 |        |                |                                                                                                   |               | consult |
| Pressure                                     |                                                      |        |                |                                                                                                   |               |         |
| gauge                                        |                                                      | R      |                |                                                                                                   |               |         |
| 4 20 mA / 2-wire                             |                                                      | 1      |                |                                                                                                   |               |         |
| 0 10 V / 3-wire                              |                                                      | 1      |                |                                                                                                   |               |         |
| 0.5 4.5 V / 3-wire ratiometric               |                                                      | 3<br>R |                |                                                                                                   |               |         |
| Accuracy                                     |                                                      | K      |                |                                                                                                   |               |         |
| 0.5 % FSO                                    |                                                      | 5      |                |                                                                                                   |               |         |
| customer                                     |                                                      | 9      |                |                                                                                                   |               | consult |
| Electrical connection                        |                                                      | 0      |                |                                                                                                   |               | conour  |
| Male and female plug ISO 4400                |                                                      |        | 1 0 0          |                                                                                                   |               |         |
| Male and female plug Micro                   |                                                      |        | C 1 0          |                                                                                                   |               |         |
| Male plug M12x1 (4-pin), plastic             |                                                      |        | M 0 0          |                                                                                                   |               |         |
| Cable outlet with PVC-cable 1                |                                                      |        | T A O          |                                                                                                   |               |         |
| customer                                     |                                                      |        | T A 0<br>9 9 9 |                                                                                                   |               | consult |
| Mechanical connection / Seal                 |                                                      |        |                |                                                                                                   |               |         |
| G1/4" DIN 3852 /                             |                                                      |        |                | 300 P                                                                                             |               |         |
| on pressure port: FKM                        |                                                      |        |                |                                                                                                   |               |         |
| G1/4" EN 837 / without                       |                                                      |        |                | 4 0 0 2                                                                                           |               |         |
| 1/4" NPT / without<br>G1/2" EN 837 / without |                                                      |        |                | N 4 0 2                                                                                           |               |         |
|                                              |                                                      |        |                | 4     0     0     2       N     4     0     2       2     0     0     2       9     9     9     9 |               |         |
| customer                                     |                                                      | _      | _              | 99999                                                                                             |               | consult |
| Special version<br>standard                  |                                                      |        |                |                                                                                                   | 0 0 0         |         |
| oxygen application <sup>2</sup>              |                                                      |        |                |                                                                                                   | 0 0 0 0 0 0 0 |         |
| oil and grease free                          |                                                      |        |                |                                                                                                   | 0 0 8         |         |
| customer                                     |                                                      |        |                |                                                                                                   | 9 9 9         | consult |
| customer                                     |                                                      |        |                |                                                                                                   | 3 3 3 3       | consult |

 $^{1}$  standard: 2 m PVC cable without ventilation tube (permissible temperature: -5  $\ldots$  70 °C)

<sup>2</sup> not possible with G1/4" DIN 3852

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# SPECIAL VERSIONS



# **DMK 456**

## Pressure Transmitter with Stainless Steel Field Housing

Special application: Marine and Offshore

accuracy according to IEC 60770: standard: 0.25 % FSO option: 0.1 % FSO

#### **Nominal pressure**

from 0 ... 40 mbar up to 0 ... 20 bar

#### **Output signals**

2-wire: 4 ... 20 mA others on request

#### **Product characteristics**

- GL-certificate (Germanischer Lloyd)
- DVN-certificate (Det Norske Veritas)
- CCS-certificate (China Classification Society)
- stainless steel field housing
- IS-version (temperature class T6)
   Ex ia = intrinsically safe for gases and dusts
- high overpressure resistance

#### **Optional versions**

- diaphragm Al<sub>2</sub>O<sub>3</sub> 99.9 %
- different inch threads and flush versions

The pressure transmitter DMK 456 has been developed for measuring the pressure in systems and the level in tanks. It has been certified by Germanischer Lloyd (GL) and is therefore predestined for shipbuilding and offshore applications.

Due robust stainless steel field housing and the possibility to use the device in intrinsic safe areas (temperature class T6) enable to measure the pressure of aggressive gases and fluids under extreme operating conditions. The basis for the DMK 456 is a capacitive ceramic sensor element designed by BD|SENSORS, which offers a high overload resistance and medium compatibility.

#### Preferred areas of use are



Monitoring of the pressure during loading and unloading processes Monitoring of a ship's position and draught



Use in anti-heeling systems Level measurement in ballast and storage tanks

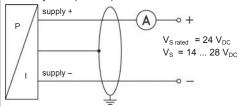


Monitoring of the internal pressure in liquid gas cargo tanks

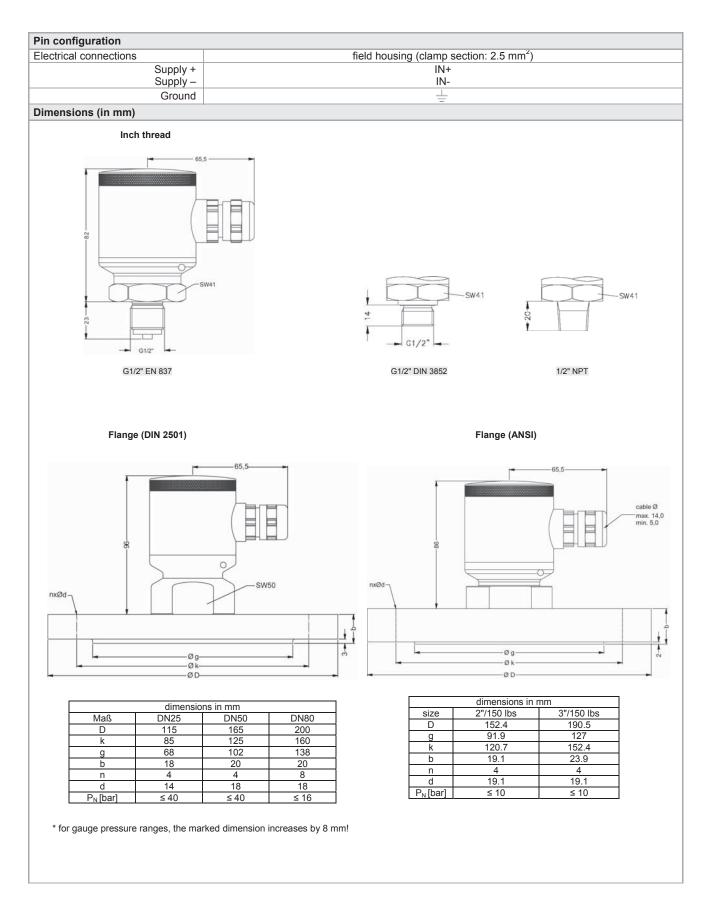




| Pressure ranges                                                                                                                                                                                                  |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------|-----------------------------|-------------------------------|-------------------------------------------|-------------------------------|---------------------|----------|----------|---------|---------------------|----------|----------|
| Nominal pressure 1                                                                                                                                                                                               | [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                                                                                                                                                                                                            | [mH₂O]      | 0.4                                                                                                  | 0.6                                                                                                          | 1                        | 1.6                                          | 2.5                         | 4                             | 6                                         | 10                            | 16                  | 25       | 40       | 60      | 100                 | 160      | 20       |
| Permissible overpressure                                                                                                                                                                                         | [bar]       | 2                                                                                                    | 2                                                                                                            | 4                        | 4                                            | 6                           | 6                             | 8                                         | 8                             | 15                  | 25       | 25       | 35      | 35                  | 45       | 45       |
| Permissible vacuum                                                                                                                                                                                               | [bar]       | -0                                                                                                   | .2                                                                                                           | -0                       | ).3                                          |                             | -C                            | .5                                        |                               |                     |          |          | -1      |                     |          |          |
| <sup>1</sup> available in gauge, sealed g                                                                                                                                                                        | auge and a  | bsolute;                                                                                             | nomina                                                                                                       | l pressi                 | ure rang                                     | es seale                    | ed gaug                       | e and a                                   | bsolute                       | from 1 k            | bar      |          |         |                     |          |          |
| Output signal / Supply                                                                                                                                                                                           |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Standard                                                                                                                                                                                                         |             | 2-wire                                                                                               | · 4                                                                                                          | 20 m/                    | A IS-vei                                     | sion / \                    | $V_{c} = 14$                  | 28                                        | Vpc                           |                     |          |          |         | V <sub>C</sub> ante | d = 24 ∖ | /        |
| Performance                                                                                                                                                                                                      |             | 2 1110                                                                                               |                                                                                                              | 20111                    |                                              |                             | •5 1                          |                                           | • DC                          |                     |          |          |         | * S rate            |          | DC       |
| Accuracy <sup>2</sup>                                                                                                                                                                                            |             | standa                                                                                               | ard: <                                                                                                       | + 0.2                    | 5 % FS                                       | 0                           |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Accuracy                                                                                                                                                                                                         |             | option                                                                                               |                                                                                                              |                          | 6 bar <sup>3</sup> :                         |                             | l % FS                        | 0                                         |                               |                     |          |          |         |                     |          |          |
| Permissible load                                                                                                                                                                                                 |             |                                                                                                      |                                                                                                              |                          | / 0.02                                       |                             |                               | -                                         |                               |                     |          |          |         |                     |          |          |
| Long term stability                                                                                                                                                                                              |             | $\leq \pm 0.7$                                                                                       |                                                                                                              |                          |                                              | , .] = =                    |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Influence effects                                                                                                                                                                                                |             | supply                                                                                               |                                                                                                              |                          | FSO /                                        | 10 V                        |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             | load:                                                                                                |                                                                                                              |                          | FSO/                                         |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Turn-on time                                                                                                                                                                                                     |             | 700 m                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Mean response time                                                                                                                                                                                               |             | < 200                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           | m                             | ean me              | easurin  | a rate ( | 5/sec   |                     |          |          |
| Max. response time                                                                                                                                                                                               |             | 380 m                                                                                                |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          | 5        |         |                     |          |          |
| <sup>2</sup> accuracy according to IEC 6                                                                                                                                                                         | 0770 – limi | t point a                                                                                            | diustme                                                                                                      | nt (non                  | -linearity                                   | . hvster                    | esis. re                      | peatabil                                  | itv)                          |                     |          |          |         |                     |          |          |
| <sup>3</sup> Under the influence of disturb                                                                                                                                                                      | oance burst | t accordi                                                                                            | ng to El                                                                                                     | V 6100                   | )-4-4 (20                                    | 004) +2                     | kV acci                       | iracy de                                  | creased                       | $to \le \pm 0$      | 0.25 % I | FSO.     |         |                     |          |          |
| Thermal effects / Permis                                                                                                                                                                                         |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Thermal error                                                                                                                                                                                                    |             | ≤±0.1                                                                                                |                                                                                                              | O / 10                   | К                                            | in cor                      | npensa                        | ated rai                                  | nae -2(                       | ) 80                | °C       |          |         |                     |          |          |
| Permissible temperatures                                                                                                                                                                                         |             | mediu                                                                                                |                                                                                                              |                          |                                              |                             |                               | enviro                                    | <u> </u>                      |                     |          |          | storage | a40                 | 100 °    | С        |
| Electrical protection                                                                                                                                                                                            |             | modia                                                                                                |                                                                                                              |                          |                                              | 01000                       | 0111007                       | onviro                                    | innont.                       | 20                  | 00 0     |          | otorag  | 0. 10 .             | 100      | <u> </u> |
| Short-circuit protection                                                                                                                                                                                         |             | norma                                                                                                | nont                                                                                                         |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  | <u> </u>    | perma                                                                                                |                                                                                                              | but old                  | so no fu                                     | notion                      |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Reverse polarity protection<br>Electromagnetic compatib                                                                                                                                                          |             |                                                                                                      |                                                                                                              |                          | inity ac                                     |                             |                               | 61226                                     | and C                         | ormon               | iachar   | Lloyd (  |         |                     |          |          |
|                                                                                                                                                                                                                  | inty        | 611155                                                                                               | ion and                                                                                                      |                          | anity ac                                     | coruni                      |                               | 101520                                    | anu e                         | erman               | ISCHEI   | Lioyu (  | GL)     |                     |          |          |
| Mechanical stability                                                                                                                                                                                             |             | 4                                                                                                    |                                                                                                              |                          |                                              | - 0 / 1-                    |                               |                                           | 20000                         | 0.0                 |          |          |         |                     |          |          |
| Vibration                                                                                                                                                                                                        |             | 4 g (a                                                                                               | ccorair                                                                                                      | ig to G                  | L: curv                                      | e z / ba                    | asis: D                       |                                           | 50068-                        | 2-6)                |          |          |         |                     |          |          |
| Materials                                                                                                                                                                                                        |             | r                                                                                                    |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Pressure port                                                                                                                                                                                                    |             |                                                                                                      |                                                                                                              |                          | 04 (31                                       |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Housing                                                                                                                                                                                                          |             |                                                                                                      |                                                                                                              |                          | 04 (31                                       | 6 L)                        |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Cable gland                                                                                                                                                                                                      |             | brass,                                                                                               |                                                                                                              | •                        | 1                                            |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             |                                                                                                      | on red                                                                                                       |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Seals                                                                                                                                                                                                            |             | FKM;                                                                                                 | a se al s                                                                                                    |                          | s on rec                                     |                             | 1                             |                                           |                               |                     |          |          |         |                     |          |          |
| Diaphragm                                                                                                                                                                                                        |             | standa<br>option                                                                                     |                                                                                                              |                          | nics Al <sub>2</sub><br>nics Al <sub>2</sub> |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Media wetted parts                                                                                                                                                                                               |             | pressi                                                                                               | ure por                                                                                                      | t, seal                  | s, diapł                                     | nragm                       |                               |                                           |                               |                     |          |          |         |                     |          |          |
| IS protection                                                                                                                                                                                                    |             | -                                                                                                    |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| •                                                                                                                                                                                                                |             |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
| Approval DX14A-DMK 456                                                                                                                                                                                           | 3           |                                                                                                      |                                                                                                              |                          |                                              |                             |                               |                                           |                               |                     |          |          |         |                     |          |          |
|                                                                                                                                                                                                                  |             | zone (                                                                                               | ): II 1G                                                                                                     | Ex ia                    | IIC T6                                       | 660 m\                      | N.C.=                         | 52 3 n                                    | F I.=                         | 5.04                |          |          |         |                     |          |          |
| Approval DX14A-DMK 456<br>Safety techn. maximum va                                                                                                                                                               |             | zone (<br>U <sub>i</sub> = 2                                                                         | ): II 1G<br>8 V, I <sub>i</sub> =                                                                            | Ex ia<br>93 m            |                                              | 660 m\<br>ive an i          | N, C <sub>i</sub> =<br>nner c | 52.3 n<br>apacity                         | F, L <sub>i</sub> =<br>of ma: | 5 μH,<br>x. 90,2    | nF opp   | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures                                                                                                                                                             | alues       | zone (<br>U <sub>i</sub> = 2                                                                         | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | 52.3 n<br>apacity<br>with p <sub>at</sub> | of ma                         | x. 90,2             |          | oosite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment                                                                                                                                              | alues       | zone (<br>U <sub>i</sub> = 2<br>the su                                                               | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br>Miscellaneous                                                                                                                             | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20                                                        | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection                                                                                                | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20                                                        | ): II 1G<br>8 V, I <sub>i</sub> =<br>pply co                                                                 | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position                                                                       | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any                                        | 0: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C                                                        | Ex ia<br>93 m            | IIC T6<br>A, P <sub>i</sub> =                | ive an i                    | nner c                        | apacity                                   | of ma                         | x. 90,2             |          | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption                                                | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2                              | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C<br>21 mA                                               | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo           | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight                                      | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4                    | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c                                    | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =                | ive an i<br>in zo           | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life                  | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100           | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply co<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c             | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life<br>CE conformity | alues       | zone (<br>U <sub>i</sub> = 2:<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100<br>EMC I | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c<br>Directiv | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |
| Safety techn. maximum va<br>Permissible temperatures<br>environment<br><b>Miscellaneous</b><br>Ingress protection<br>Installation position<br>Current consumption<br>Weight<br>Operational life                  | alues       | zone (<br>U <sub>i</sub> = 2<br>the su<br>-20<br>IP 67<br>any<br>max. 2<br>min. 4<br>> 100           | 2: II 1G<br>8 V, I <sub>i</sub> =<br>pply cc<br>60 °C<br>21 mA<br>00 g (c<br>x 10 <sup>6</sup> c<br>Directiv | Ex ia<br>93 m.<br>onnect | IIC T6<br>A, P <sub>i</sub> =<br>ions ha     | ive an i<br>in zo<br>housin | nner c                        | apacity<br>with p <sub>at</sub>           | of ma:<br><sub>m</sub> 0.8 ι  | x. 90,2<br>ip to 1. | 1 bar    | posite t | he enc  | losure              |          |          |



## DMK 456 Technical Data



| Pressure         In bar, gauge         5         9         6         In bar, absolute         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1 <th1< th="">         1<th>DMK 456</th><th></th><th></th></th1<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DMK 456                                           |             |         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------|---------|
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   | 505         |         |
| in mH_0, absolute <sup>1</sup> 5 [9]8]       in mH_0, absolute <sup>1</sup> 5 [9]8] |                                                   | 5 9 6       | consult |
| Input         (mH, 0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             | oopoult |
| 0.40 0.04 0.04 0.04 0.0 0 0 0 0 0 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |             | consult |
| 1.0       0.10       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td>0.40 0.04</td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.40 0.04                                         |             |         |
| 1.6       0.16       1       6       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td></td> <td></td> <td></td>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   |             |         |
| 2.5     0.25     2.5     0.0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0     0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |             |         |
| $ \begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.5 0.25                                          | 2 5 0 0     |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| 16       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.6       1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 16 1.6                                            | 1 6 0 1     |         |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| 100     10     10     2     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     10     <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                   |             |         |
| 200       20       200       00       20       00       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   | 1 0 0 2     |         |
| customer         9         9         9         9         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                   |             |         |
| Output         Intrinsic safety 4 20 mA / 2-wire<br>customer         E<br>customer         B<br>g         C         C         C         C         C         Consult           Accuracy         Consult         Consult         Consult         Consult         Consult         Consult           Standard         0.25 %         2         C         C         C         C         C         C         Consult           Standard         0.25 %         2         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C         C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |             | consult |
| Accuracy         Standard         0.25 %         2         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | customer                                          |             | consult |
| option for PN ≥ 0,6 bar:       0.1 %       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< td=""><td></td><td></td><td></td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |             |         |
| customer         9         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a         a<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   |             |         |
| Field housing customer       8       8       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <th1< th=""> <th1< th="">       1       <th1< th=""></th1<></th1<></th1<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                   |             | consult |
| customer       9       9       9       9       9       9       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                   |             |         |
| Mechanical connection       G1/2" DIN 3852       1       0       0       4       4       6         G1/2" EN 837       2       0       0       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             | consult |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   |             |         |
| Flange DN 25 / PN 40 (DIN 2501)       F       2       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                   |             |         |
| Flange DN 80 / PN 16 (DIN 2501) 2       F       1       6       6         Flansch DN 2" / 150 lbs (ANSI B16.5) 2       F       3       2       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6         Seals       7       1       6       6       6         Seals       1       6       6       6         Pressure port       9       9       6       6         Stainless steel 1.4404 (316L)       1       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       2       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%       7       7       6         Customer       9       9       6       6         Special version       9       6       6       6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   | F 2 0       |         |
| Flansch DN 2" / 150 lbs (ANSI B16.5) 2       F       3       2       6       6       6         Flansch DN 3" / 150 lbs (ANSI B16.5) 2       F       3       3       6       6       6         Seals       1       6       6       6       6       6       6         Seals       9       9       9       9       6       6       6         Pressure port       9       9       6       6       6       6         Stainless steel 1.4404 (316L)       1       6       6       6       6         Customer       9       6       6       6       6       6         Diaphragm       1       6       6       6       6       6       6         Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       2       6       6       6       6       6       6         Special version       9       0       0       0       0       0       0       0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Flange DN 50 / PN 40 (DIN 2501)                   | F 2 3       |         |
| Flansch DN 3" / 150 lbs (ANSI B16.5) *       F 3 3 3       G       G       G       G       Consult         Seals       FKM       1       G       G       G       G       G       G         FKM       1       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G       G <td< td=""><td>Flange DN 80 / PN 16 (DIN 2501)<sup>2</sup></td><td>F 1 4 F 3 2</td><td></td></td<>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Flange DN 80 / PN 16 (DIN 2501) <sup>2</sup>      | F 1 4 F 3 2 |         |
| Customer         9         9         9         9         9         0         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Flansch DN 3" / 150 lbs (ANSI B16.5) <sup>2</sup> | F 3 3       |         |
| FKM       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | customer                                          | 9 9 9       | consult |
| customer         9         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I<                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                   | 1           |         |
| Pressure port         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         I         <                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |             | consult |
| customer         9         I         consult           Diaphragm         I         I         I           Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         I         I           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         I         I           customer         9         I         I           Special version         I         I         I                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                   |             |         |
| Diaphragm         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         2           customer         9         consult                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                   |             | conquit |
| Ceramics Al <sub>2</sub> O <sub>3</sub> 96%         2         2         2           Ceramics Al <sub>2</sub> O <sub>3</sub> 99,9%         C         C         2           customer         9         consult           Special version         0         0         0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                   | 9           | consult |
| customer     9     consult       Special version     0     0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ceramics Al <sub>2</sub> O <sub>3</sub> 96%       |             |         |
| Special version 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                   |             | U       |
| standard 0 0 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                   | 9           | consult |
| customer 9 9 9 consult                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                   | 0 0 0       |         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | customer                                          | 9 9 9       | consult |

 $^1$  nominal pressure ranges absolute from 1 bar; sealed gauge on request  $^2$  2"/150 lbs and 3"/150 lbs possible for nominal pressure ranges  $P_N$  ≤ 10 bar

This document contains product specifications; properties are not guaranteed. Detailed information about options are defined in the datasheet. Subject to change without notice.

# SPECIAL VERSIONS



# HU 300

## Hammer Union Pressure Transmitter

special application petrochemical industry / offshore

accuracy according to IEC 60770: 0.5 % FSO

#### **Nominal pressure**

from 0 ... 5 000 psi up to 0 ... 15 000 psi

#### **Output signals**

2-wire: 4 ... 20 mA 3-wire: 0 ... 5 V 4-wire: 3 mV/V others on request

#### **Product characteristics**

- extreme robust and stable
- vibration / shock

#### **Optional versions**

- IS-version zone 0 / 1 (only for 4 ... 20 mA / 2-wire)
- different output signals

#### Versions on request

- ▶ pressure port in Inconel<sup>®</sup>
- electrical connection Glenair (4-pin)
- mechanical connection WECO<sup>®</sup>2" (2002/2202)

The pressure transmitter HU 300 has been especially developed for extreme operating conditions in the petrochemical industry (on- and offshore sites). A high degree of reliability and accuracy is the precondition for a perfect function during cementing and tightening processes (annulus) on wellbores.

A one-piece pressure port, a high-quality pressure sensor and precise machining and assembly techniques ensure a small drifting and a high long-term stability. A very high resistance against vibration, shock and pressure peaks without any influence on the measurement characteristics is guaranteed. Due to the extreme environmental conditions on-site, it is important to offer solutions to different requirements, as f. ex. an intrinsic-safe version (zone 0), an electrical connection with IP 68 or special steel materials.

#### Preferred areas of use are



cementing wellbores hydraulic fracturing intensifying wellbores



-

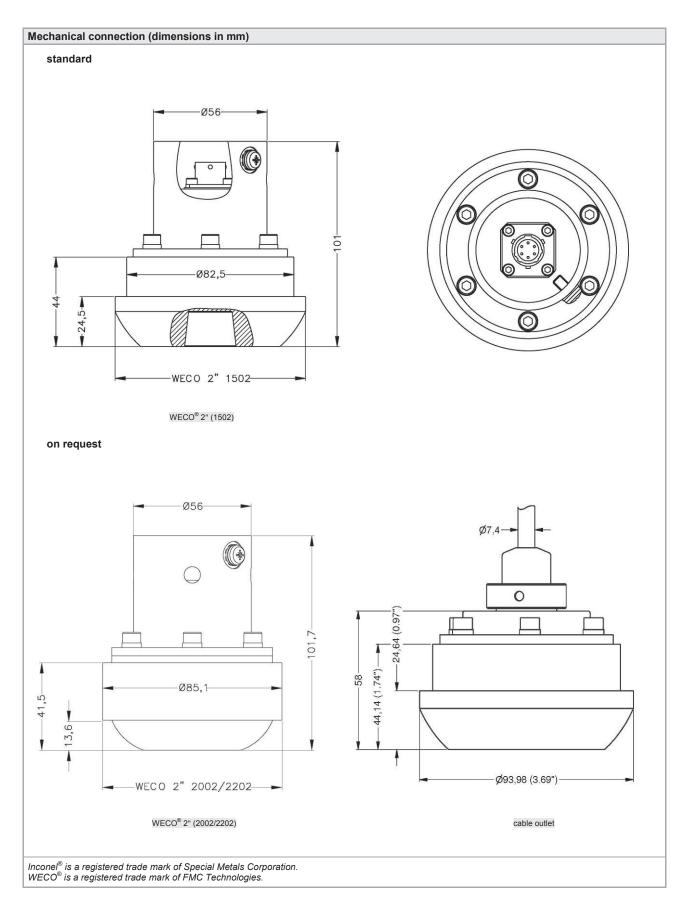
| Pressure ranges                                   |                                                               |                                        |                             |          |
|---------------------------------------------------|---------------------------------------------------------------|----------------------------------------|-----------------------------|----------|
| Nominal pressure [psi]                            | 5 000                                                         | 6 000                                  | 10 000                      | 15 000   |
| Permissible overpressure [psi]                    | 7 500                                                         | 9 000                                  | 15 000                      | 22 500   |
| Burst pressure ≥ [psi]                            | 10 000                                                        | 12 000                                 | 20 000                      | 30 000   |
|                                                   |                                                               |                                        |                             |          |
| Supply                                            |                                                               |                                        |                             |          |
| Standard                                          | 2-wire: 4 20 mA / Vs                                          |                                        |                             |          |
| Ex-protection                                     | 2-wire: 4 20 mA / $V_S$                                       | ; = 14 28 V <sub>DC</sub> <sup>1</sup> |                             |          |
| In preparation                                    |                                                               | / <sub>S</sub> = 14 30 V <sub>DC</sub> |                             |          |
| (only possible with MIL- / Ben-<br>dix-connector) | 4-wire: 3 mV/V / V                                            | / <sub>s</sub> = 6 10 V <sub>DC</sub>  |                             |          |
| <sup>1</sup> valid for temperature from -40 85 °C | : for higher temperatures the                                 | supply has to be limited               |                             |          |
| Performance                                       | , for higher temperatures the                                 | cappiy had to be minted                |                             |          |
| Accuracy                                          | IEC 60770: ≤ ± 0.5 % FS                                       | 80                                     |                             |          |
| Permissible load                                  |                                                               | $m_{max} = [(V_S - V_{S min}) / 0.02]$ | A10                         |          |
|                                                   |                                                               | $\max_{\min} \ge 10 \ \text{k}\Omega$  | nj 52                       |          |
|                                                   | 0                                                             | $mn \ge 100 \text{ k}\Omega$           |                             |          |
| Influence effects                                 | supply: 0.05 % FSO /                                          |                                        |                             |          |
|                                                   | load: 0.05 % FSO /                                            |                                        |                             |          |
| Long term stability                               | ≤ ± 0.5 % FSO per 6 mo                                        | nths                                   |                             |          |
| Response time                                     | ≤ ± 1.5 msec                                                  |                                        |                             |          |
| Thermal effects (Offset and Spa                   | n)                                                            |                                        |                             |          |
| Thermal errors                                    | ≤ ± 2 % FSO / 100 K                                           | in co                                  | mpensated range -5 60       | °C       |
| Permissible temperatures                          |                                                               |                                        |                             |          |
| Permissible temperatures                          | medium / environment:<br>storage:                             | -40 125 °C<br>-55 125 °C               |                             |          |
| Calibration                                       | otologol                                                      |                                        |                             |          |
| Calibration signal accuracy                       | ≤±0.2 % FSO                                                   |                                        |                             |          |
| Calibration signal                                | 80 % FSO (16.8 mA)                                            |                                        |                             |          |
| Electrical protection                             |                                                               |                                        |                             |          |
| Short-circuit protection                          | permanent                                                     |                                        |                             |          |
| Reverse polarity protection                       | no damage, but also no t                                      | function                               |                             |          |
| Electromagnetic compatibility                     | emission and immunity a                                       |                                        |                             |          |
| Mechanical stability                              |                                                               | <u> </u>                               |                             |          |
| Vibration                                         | 20g, 25 Hz 2 kHz                                              | according                              | to DIN EN 60068-2-6         |          |
| () Siddoff                                        | $7.5 g_{RMS}$ , 5 Hz – 1 kHz                                  |                                        | to DIN EN 60068-2-64        |          |
| Shock                                             | 500 g / 1 msec                                                |                                        | to DIN EN 60068-2-27        |          |
| Free Fall                                         | 1 m (free fall base: steel)                                   |                                        | to DIN EN 60068-2-32        |          |
| Materials                                         |                                                               |                                        |                             |          |
| Pressure port / diaphragm                         | standard: stainless s<br>on request: Inconel X7<br>Inconel X7 |                                        |                             |          |
| Housing                                           | stainless steel 1.4404 (3                                     | 16L)                                   |                             |          |
| Media wetted parts                                | pressure port                                                 |                                        |                             |          |
| Explosion protection (only for 4                  | 20 mA / 2-wire)                                               |                                        |                             |          |
| Approval<br>DX 18-HU 300                          | IBExU08ATEX1127 X<br>zone 0/1: II 1/2 G Ex ia                 | a IIC T4                               |                             |          |
| Safety technical maximum val-                     | U <sub>i</sub> = 28 V, I <sub>i</sub> = 100 mA, P             |                                        | = 5 µH,                     |          |
| ues                                               |                                                               |                                        | f max. 27 nF opposite the I | nousing. |
| Permissible temperatures for medium               | -40 70 °C                                                     |                                        |                             |          |
| Permissible temperatures for environment          | in zone 0: -20 60 °C<br>in zone 1: -25 70 °C                  | with p <sub>atm</sub> 0.8 bar up to 1. | 1 bar                       |          |

# HU 300 Technical Data

| Miscellaneous                                                                  |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------------------------------------|----------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connecting cables                                                              | cable capacitance: signal lin                                  | ne/shield also signal line/signal lir               | ne: 150 pF/m                                                                                                                                                                                                                                                                                                 |
| (by factory)<br>Current consumption                                            | cable inductance: signal lin<br>2-wire signal output current:  | ne/shield also signal line/signal lir<br>max. 50 mA | ne: 1 μH/m                                                                                                                                                                                                                                                                                                   |
|                                                                                | 3-wire signal output voltage:<br>4-wire signal output voltage: | approx. 15 mA<br>29 mA @ 10 V                       |                                                                                                                                                                                                                                                                                                              |
| Installation position                                                          | any                                                            |                                                     |                                                                                                                                                                                                                                                                                                              |
| Weight<br>Wiring diagrams                                                      | 2.1 kg                                                         |                                                     |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
| 2-wire                                                                         | 3-wire                                                         | 4-wire                                              | $ \begin{array}{c cccc}  & & & & & & & & & \\ \hline V_{S}^{+} & & & & & & & \\ \hline V_{S}^{-} & & & & & & \\ \hline V_{S}^{-} & & & & & & \\ \hline C_{S+} & & & & & & \\ \hline D_{S-} & & & & & \\ \hline C_{AL+} & & & & & \\ \hline F & CAL- & & & & \\ \hline CAL- & & & & & \\ \hline \end{array} $ |
| Pin configuration                                                              |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
| Electrical connection                                                          | MIL-/ Bendix (6-pin)                                           | Glenair (4-pin)                                     | cable colours<br>(DIN 47100)                                                                                                                                                                                                                                                                                 |
| Supply +<br>Supply –<br>Calibration +<br>Calibration –<br>for 3-wire / 4-wire: | pin A<br>pin B<br>pin E<br>pin F                               | pin C<br>pin B<br>pin D<br>pin A                    | wh (white)<br>bn (brown)<br>pk (pink)<br>gy (grey)                                                                                                                                                                                                                                                           |
| Signal +<br>Signal –                                                           | pin C<br>pin D<br>cable shield /                               |                                                     | :                                                                                                                                                                                                                                                                                                            |
| Shield                                                                         | for 2-wire: pin D                                              | plug housing                                        | ye/gn (yellow / green)                                                                                                                                                                                                                                                                                       |
| Electrical connections (dimensio                                               | ons in mm)                                                     |                                                     |                                                                                                                                                                                                                                                                                                              |
| standard                                                                       | on ree                                                         | quest                                               |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     |                                                                                                                                                                                                                                                                                                              |
|                                                                                |                                                                |                                                     | Ø35-                                                                                                                                                                                                                                                                                                         |
| MIL-/ Bendix (6-pin)<br>PT02_E10-6P-023<br>(IP 67)                             | Glenair<br>GC379-2<br>(IP                                      | 2-14S-2P                                            | cable outlet<br>(IP 68)                                                                                                                                                                                                                                                                                      |

HU 300 Technical Data

130



# HU 300 Ordering Code

| HU 300                                       |       | -       | -  | - 🗌 | -   |     | - 🗌 |     | ]-[ |   | - 🗌    |   | - |   |   |                |
|----------------------------------------------|-------|---------|----|-----|-----|-----|-----|-----|-----|---|--------|---|---|---|---|----------------|
| Standard version                             |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
|                                              | H U 0 |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Input [psi]                                  |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 5 000                                        | P     |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 6 000<br>10 000                              | P     | 6 K 0   |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 15 000                                       | P     |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| customer                                     | G G   | 9999    |    |     |     |     |     |     |     |   |        |   |   |   |   | consult        |
| Output                                       | 5     | 1919191 |    |     |     |     |     |     |     |   |        |   |   |   |   | Consult        |
| 4 20 mA / 2-wire                             |       |         | 1  |     |     |     |     |     |     |   | _      |   | _ |   |   |                |
| Intrinsic safety 4 20 mA / 2-wire            |       |         | E  |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 0 5 V / 3-wire                               |       |         | 4  |     |     |     |     |     |     |   |        |   |   |   |   | in preparation |
| 3 mV/V / 4-wire                              |       |         | V3 |     |     |     |     |     |     |   |        |   |   |   |   | in preparation |
| customer                                     |       |         | 9  |     |     |     |     |     |     |   |        |   |   |   |   | consult        |
| Accuracy                                     |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| 0.5 %                                        |       |         |    | 5   |     |     |     |     |     |   |        |   |   |   |   |                |
| customer                                     |       |         |    | 9   |     | _   |     |     |     |   |        |   |   |   |   | consult        |
| Electrical connection <sup>1</sup>           |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| MIL-/ Bendix (6-pin)<br>type PT02_E10-6P-023 |       |         |    |     | В 2 | 2 0 |     |     |     |   |        |   |   |   |   |                |
| Glenair (4-pin)                              |       |         |    |     | в   | z o |     |     |     |   |        |   |   |   |   |                |
| GC379-2-14S-2P                               |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Cable outlet IP 68<br>with FEP cable         |       |         |    |     | TI  | R 2 |     |     |     |   |        |   |   |   |   |                |
| customer                                     |       |         |    |     | 0   | 9 9 |     |     |     |   |        |   |   |   |   | consult        |
| Mechanical connection                        |       |         |    |     | 9   | 9 9 |     |     |     |   |        |   |   |   |   | Consult        |
| WECO 2" 1502                                 |       |         | _  | _   | _   | _   | н   | U 0 |     |   | _      |   | _ |   |   |                |
| WECO 2" 2002/2202                            |       |         |    |     |     |     | H   | U 1 |     |   |        |   |   |   |   | consult        |
| customer                                     |       |         |    |     |     |     | 9   | 9 9 |     |   |        |   |   |   |   | consult        |
| Material pressure port                       |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Stainless steel 1.4548 (17-4PH)              |       |         |    |     |     |     |     |     | 7   | 8 |        |   |   |   |   |                |
| customer                                     |       |         |    |     |     |     |     |     | 9   | 9 |        |   |   |   |   | consult        |
| Material diaphragm                           |       |         |    |     |     |     |     |     |     |   |        |   |   |   |   |                |
| Stainless steel 1.4548 (17-4PH)              |       |         |    |     |     |     |     |     |     |   | Z<br>9 | 8 |   |   |   |                |
| customer                                     |       |         |    |     |     |     |     | _   |     | _ | 9      | 9 |   |   |   | consult        |
| Special version                              |       |         |    |     |     |     |     |     |     |   |        |   | - | - | - |                |
| standard                                     |       |         |    |     |     |     |     |     |     |   |        |   | 0 | 0 | 0 |                |
| customer                                     |       |         |    |     |     |     |     |     |     |   |        |   | 9 | 9 | 9 | consult        |

<sup>1</sup> only male plugs

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| 132 | NOTES |
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# NOTES

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#### COMPETENCE

Industrial pressure measurement technology from 0.1 mbar up to 6000 bar

- → pressure transmitters, electronic pressure switches or hydrostatic level probes
- $\rightarrow$  OEM or high-end products
- ightarrow standard products or customized solutions

BD|SENSORS has the right pressure measuring device at the right price.

#### **PRICE / PERFORMANCE**

pressure measurement at the highest level

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BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

#### RELIABILITY

projectable delivery times and strict observance of deadlines

Short delivery times and firm deadlines, even for special designs, make BDISENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

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We have special solutions for your individual requirement.

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BDISENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.

#### INDUSTRIES

|           | plant and machine engineering                    |
|-----------|--------------------------------------------------|
|           | chemical and biochemical industry                |
| Ø         | energy industry                                  |
|           | renewable energy                                 |
|           | semiconducter industry /<br>cleanroom technology |
| 13%       | HVAC                                             |
| 1         | hydraulics                                       |
|           | refrigeration                                    |
| CAL X     | calibration techniques                           |
| A         | laboratory techniques                            |
| 0         | medical technology                               |
|           | food and beverage                                |
| <b>76</b> | vehicles and mobile hydraulics                   |
| A         | oil and gas industry                             |
| 8         | pharmaceutical industry                          |
|           | marine / shipbuilding / offshore                 |
|           | heavy industry                                   |
| 0         | environmental industry                           |
|           | packaging and paper industry                     |
|           |                                                  |

# sewage aggressive media colours gases fuels and oils pasty and viscous media oxygen water

MEDIA



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BD | SENSORS GmbH BD-Sensors-Straße 1 95199 THIERSTEIN GERMANY

Tel.: +49 9235 9811-0 Fax: +49 9235 9811-11

www.bdsensors.de info@bdsensors.de

#### DISTRIBUTION EASTERN EUROPE

BD | SENSÓRS s.r.o. Hradištšká 817 687 08 BUCHLOVICE CZECH REPUBLIC

Tet.: +420 572 411-011 Fax: +420 572 411-497

www.bdsensors.cz sale@bdsensors.cz

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