

The KD Series are for use in high temperature applications where the process temperatures may reach 538°C (1000°F) such as high temperature engineered polymers. The K Series utilizes standard melt pressure principles and construction, but uses a near incompressible NAK (Sodium Potassium) for pressure transmission. The K Series strain sensing technology is thick film on Stainless Steel.

MAIN FEATURES

Electrical

- Digital output signal with DP404 CAN OPEN communication protocol
- Transmission frequency (Baud rate): 10 Kbaud to 1Mbaud (default 500 Kbaud)
- Software selection of Baud rate and ID nodes
- Operation with 1 or 2 settable alarm limits
- “Autozero” for temperature compensation
- 80% FSO calibration signal

Mechanical

- Pressure ranges: 0-35 to 0-1000 bar / 0-500 to 0-15000 psi
- Accuracy: $< \pm 0.25\%$ FSO (H); $< \pm 0.5\%$ FSO (M)
- Hydraulic transmission system to guarantee temperature stability (NaK). Liquid conforming to RoHS Directive. NaK is defined as a safe substance (GRAS).
- Quantity of NaK contained per model:
KD0 series (30mm³) [0.00183 in³], KD1, KD2, KD3 (40mm³) [0.00244 in³]
- Standard threading: 1/2-20 UNF, M18x1.5; other versions on request.
- Inconel 718 diaphragm with GTP+ coating for temperatures up to 538°C (1000°F)
- 15-5 PH diaphragm with GTP+ coating for temperatures up to 400°C (750°F)
- Hastelloy C276 diaphragm for temperatures up to 300°C (570°F).
- 17-7 PH corrugated diaphragm with GTP+ coating for ranges below 100 bar-1500 psi up to 400°C (750°F)
- Stem material: 17-4 PH

GTP+ (advanced protection) Coating with high resistance against corrosion, abrasion and high temperature.

TECHNICAL SPECIFICATIONS

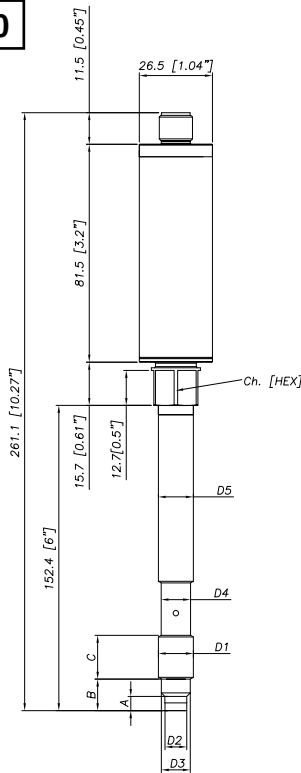
| | |
|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Accuracy (1) | H $< \pm 0.25\%$ FSO (100...1000 bar) M $< \pm 0.5\%$ FSO (35...1000 bar) |
| Sampling | 16 bit |
| Measurement range | 0..35 to 0..1000bar 0..500 to 0..15000ps |
| Maximum overpressure (without degrading performances) | 2 x FSO |
| Measurement principle | Extensimetric |
| Power supply | 12...40Vdc |
| Maximum current absorption | 20mA |
| Insulation resistance (at 50Vdc) | > 1000 MOhm |
| Output signal Full Scale FSO | Depends on FSO |
| Zero balance | 0 |
| Calibration of ambient pressure | Insertion of an offset |
| Signal protocol | DP404 CAN OPEN, with baudrate selectable from 10K to 1Mbaud (default 500Kbaud) |
| Response time (10 at 90% FSO) | 20 ms |
| Electronic response time (10 at 90% FSO) | 2 ms |
| Calibration signal | 80% FSO |
| Protection against overvoltage and reverse polarity of power supply | YES |
| Compensated temperature range | 0...+85°C |
| Operating temperature range | -30...+105°C |
| Thermal drift in compensated range: Zero / Calibration / Sensibility | $< 0.02\%$ FSO/°C |
| Diaphragm maximum temperature | 538°C (1000°F) |
| Zero drift (zero) | $< 3,5$ bar/100°C (< 28 psi/100°F) |
| Thermocouple (model KD2) | STD : type “J” (isolated junction) |
| Protection degree (with 5-pole female connector) | IP65 |

FSO = Full Scale Output

(1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability.

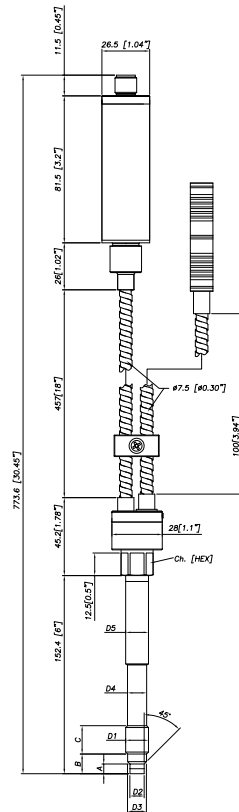
MECHANICAL DIMENSIONS

KD0

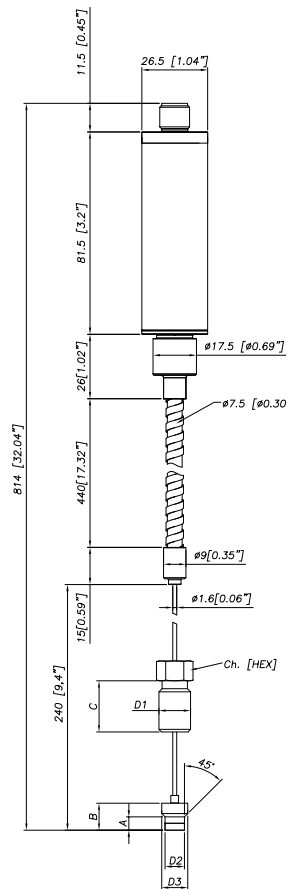


| | |
|-------|-----------------------------------|
| D1 | 1/2 - 20UNF |
| D2 | ø7.8 -0.05 [ø0.31" -0.002] |
| D3 | ø10.5 -0.025 [ø0.41" -0.001] |
| D4 | ø10.67 [ø0.42"] |
| D5 | ø12.7 [ø0.5"] |
| A | 5.56 -0.26 [0.22" -0.01] |
| B | 11.2 [0.44"] |
| C | 15.74 [0.62"] |
| Ch | 16 |
| [Hex] | [5/8"] |

KD2

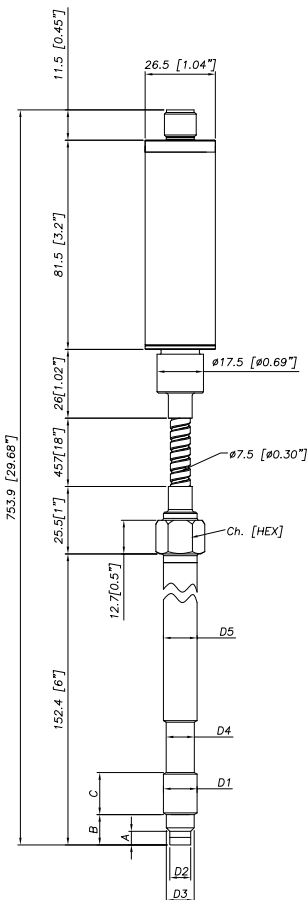


KD3



| Exposed capillary | |
|-------------------|-------------------------------|
| D1 | 1/2-20UNF |
| D2 | .307/.305" [7.80/7.75mm] |
| D3 | .414/.412" [10.52/10.46mm] |
| A | .125/.120" [3.18/3.05mm] |
| B | .318/.312" [8.08/7.92mm] |
| C | .81" [20.6mm] |

KD1



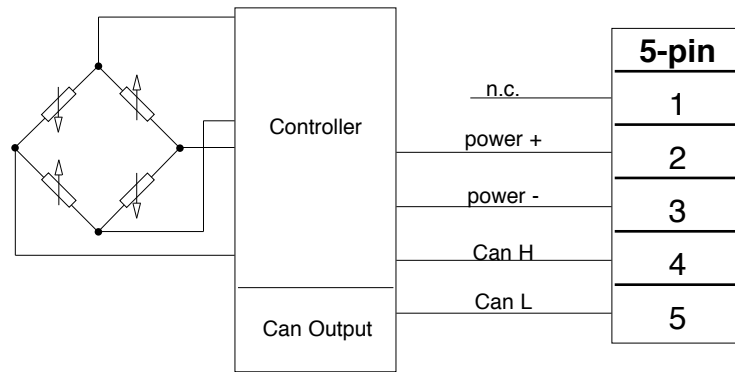
| | |
|-------|---------------------------------|
| D1 | M18x1,5 |
| D2 | ø10 -0.05 [ø0.394" -0.002] |
| D3 | ø16 -0.08 [ø0.63" -0.003] |
| D4 | ø16 -0.4 [ø0.63" -0.016] |
| D5 | ø18 [ø0.71"] |
| A | 6 -0.26 [0.24" -0.01] |
| B | 14.8 -0.4 [0.58" -0.016] |
| C | 19 [0.75"] |
| Ch | 19 |
| [Hex] | [3/4"] |

NOTE : dimensions refer to rigid stem length option "4" (153 mm – 6")

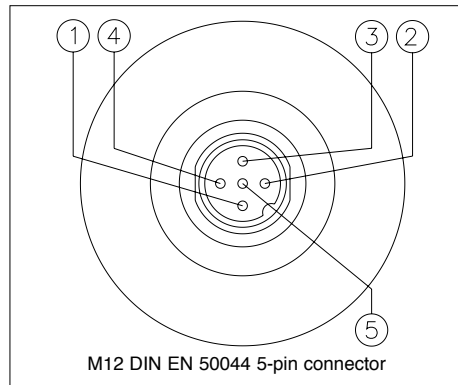
WARNING : For installation use a maximum tightening torque of 56 Nm (500 in-lb)

ELECTRICAL CONNECTIONS

CAN BUS DP404 DIGITAL OUTPUT



Shielding is connected to transducer body. It is advisable to ground it on the instrument side as well



ACCESSORIES

Connectors

5 pin female connector (IP65 protection)

CON031

Extension cables

5-pin connector with 1 meter (3.3 ft) cable

PCAV161

5-pin connector with 2 meters (7ft) cable

PCAV162

5-pin connector with 5 meters (17 ft) cable

PCAV163

Other lengths

on request

Accessories

Mounting bracket

SF18

Dummy plug for 1/2-20UNF

SC12

Dummy plug for M18x1.5

SC18

Drill kit for 1/2-20UNF

KF12

Drill kit for M18x1.5

KF18

Cleaning kit for 1/2-20UNF

CT12

Cleaning kit for M18x1.5

CT18

Thermocouple for KD2 model

Type "J" (153mm - 6" rigid stem)

TTER 601

Cable color code

| Conn. | Wire |
|-------|-------|
| 1 | n.c. |
| 2 | Red |
| 3 | Black |
| 4 | White |
| 5 | Blue |

ORDER CODE

K - - - - - 000

000= Standard version
Special or customized versions available on request

| OUTPUT SIGNAL | |
|---------------|---|
| CAN BUS | D |

| VERSION | |
|-----------------------|---|
| Rigid stem | 0 |
| Rigid + flexible stem | 1 |
| With thermocouple | 2 |
| Exposed capillary | 3 |

| CONNECTOR | |
|-----------|---|
| Standard | |
| 5 pin M12 | 5 |

| ACCURACY CLASS | |
|-----------------------------------------------|---|
| 0.25% FSO (ranges ≥ 100 bar/1500 psi) | H |
| 0.5% FSO | M |

| RANGE | | | |
|-----------------------------------------------------------------------------------|------|---------|------|
| bar (*) | | psi (*) | |
| 35 | B35U | 500 | P05C |
| 50 | B05D | 750 | P75D |
| 70 | B07D | 1000 | P01M |
| 100 | B01C | 1500 | P15C |
| 200 | B02C | 3000 | P03M |
| 350 | B35D | 5000 | P05M |
| 500 | B05C | 7500 | P75C |
| 700 | B07C | 10000 | P10M |
| 1000 | B01M | 15000 | P15M |
| (*) Hastelloy diaphragm not available for pressure range ≤ 70 bar (1000 psi) | | | |

| THREAD | |
|--------------|---|
| Standard | |
| 1/2 - 20 UNF | 1 |
| M18 x 1.5 | 4 |

| CONTACT DIAPHRAGM | |
|---------------------|-------------------------|
| I | INCONEL 718 (538°C*) |
| S | 15-5 PH (400°C*) |
| H | HASTELLOY C276 (300°C*) |
| (*) max temperature | |

| FLEXIBLE STEM LENGTH (*) (mm / inches) | |
|-------------------------------------------|-----------|
| Standard (KD0) | |
| 0 | none |
| Standard (KD1, KD2) | |
| D | 457mm 18" |
| E | 610mm 24" |
| F | 760mm 30" |
| Standard (KD3) | |
| L | 711mm 28" |
| Available on request | |
| A | 76mm 3" |
| B | 152mm 6" |
| C | 300mm 12" |

| RIGID STEM LENGTH (*) (mm / inches) | |
|------------------------------------------------------------|-------------|
| Standard (KD0, KD1, KD2) | |
| 4 | 153mm 6" |
| 5 | 318mm 12.5" |
| Standard (KD3) | |
| 0 | none |
| Available on request | |
| 1 | 38mm 1.5" |
| 2 | 50mm 2" |
| 3 | 76mm 3" |
| 6 | 350mm 14" |
| 7 | 400mm 16" |
| 8 | 456mm 18" |
| (*) max combined rigid/flexible stem length is 1000 mm-39" | |

Examples

KD0-5-M-B07C-1-4-0-I-000

Melt pressure transducer with Can output, 5-pin connector, 1/2-20 UNF threading, pressure range 700 bar, 0.5%accuracy class, 153 mm (6") rigid stem, Inconel 718 diaphragm.

KD1-5-M-P03M-1-4-D-I-000

Melt pressure transducer with Can output, 5-pin connector, 1/2-20 UNF threading, pressure range 3000 psi, 0.5%accuracy class, 153 mm (6") rigid stem, 457 mm (18") flexible stem, Inconel 718 diaphragm.

Sensors are manufactured in compliance with:

- EMC compatibility directive
- RoHS directive

Electrical installation requirements and conformity certificate are available on our web site: www.gefran.com

GEFRAN spa reserves the right to make any kind of design or functional modification at any moment without prior notice

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