GEFRAN

NaK FILLED MELT PRESSURE TRANSMITTERS

SERIE KD — *DP404 CAN OPEN digital output*

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: < ± 0.25% FSO (H); < ±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.

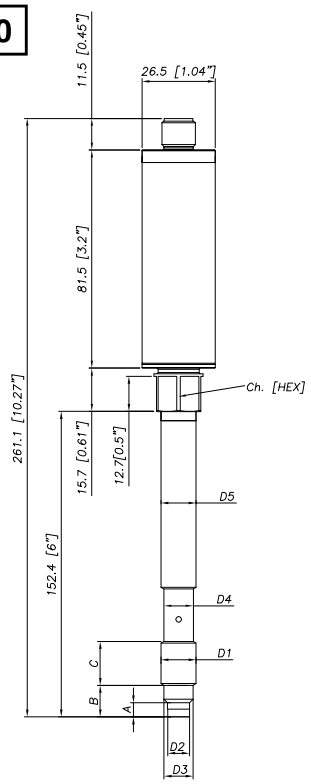
TECHNICAL SPECIFICATIONS

Accuracy (1)	**H** <±0.25%FSO (100...1000 bar) **M** <±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 compesated range: Zero / Calibration / Sensibility	<0.02 %FSO/°C
Diaphragm maximum temperature	538°C (1000°F)
Zero drift (zero)	< 3,5bar/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.

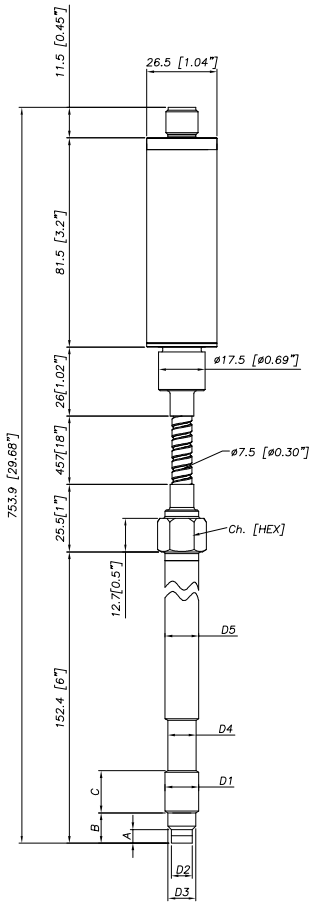
MECHANICAL DIMENSIONS

KD0



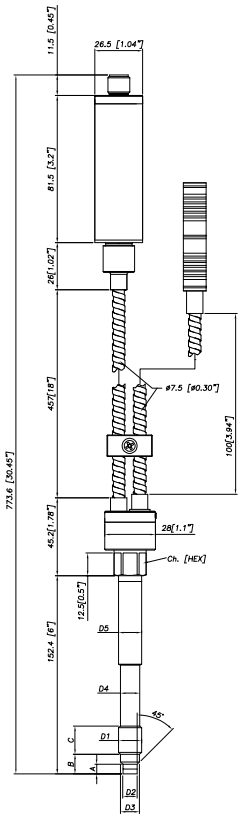
D1	1/2 - 20UNF
D2	ø7.8 -0.05 [ø0.31" -0.002]
D3	ø10.5 -0.025 [ø0.41" -0.001]
D4	ø10.67 [ø0.42"]
D5	ø12.7 [ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

KD1

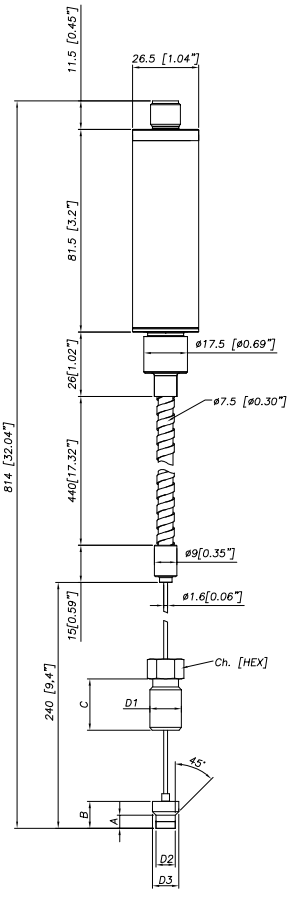


D1	M18x1,5
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

KD2



KD3



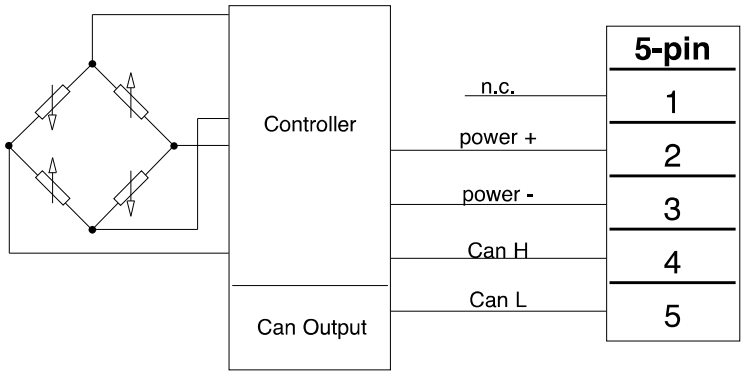
Exposed capillary	
D1	1/2-20UNF
D2	.307/.305" [7.80/7.75mm]
D3	.414/.412" [10.52/10.46mm]
A	.125/.120" [3.18/3.05mm]
B	.318/.312" [8.08/7.92mm]
C	.81" [20.6mm]

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

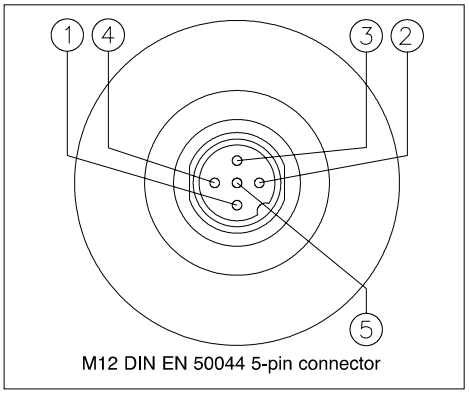
WARNING : For installation use a maximum tightening torque of 56 Nm (500 in-lb)

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



M12 DIN EN 50044 5-pin connector

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

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