

The KN 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 bonded foil strain gage.

### MAIN FEATURES

- Pressure ranges from:  
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 for pressure signal guarantees stability at working temperature (NaK). Liquid conforming to RoHS Directive. NaK is defined as a safe substance (GRAS).
- Quantity of NaK contained per model: KNO series (30mm<sup>3</sup>) [0.00183 in<sup>3</sup>], KN1, KN2, KN3 (40mm<sup>3</sup>) [0.00244 in<sup>3</sup>]
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Autozero function on board / external option
- Stem drift Autocompensation function (SP version)
- 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)
- Material of stem 17-4PH

*GTP (advanced protection)*

*Coating with high resistance against corrosion, abrasion and high temperature*

### AUTOZERO FUNCTION

All signal variations in the absence of pressure can be eliminated by using the Autozero function.

This function is activated by closing a magnetic contact located on the transmitter housing.

The procedure is permitted only with pressure at zero.

### AUTOCOMPENSATED INFLUENCE OF MELT TEMPERATURE

Thanks to internal self-compensation, the KSP series transmitter cancels the effect of pressure signal variation caused by variation of Melt temperature.

This reduces at the minimum the read error caused by heating of the filling fluid (typical of all sensors built with "filled" technology).

The drift values declared in the version with Autocompensation are valid for media temperatures up to 500°C.

### TECHNICAL SPECIFICATIONS

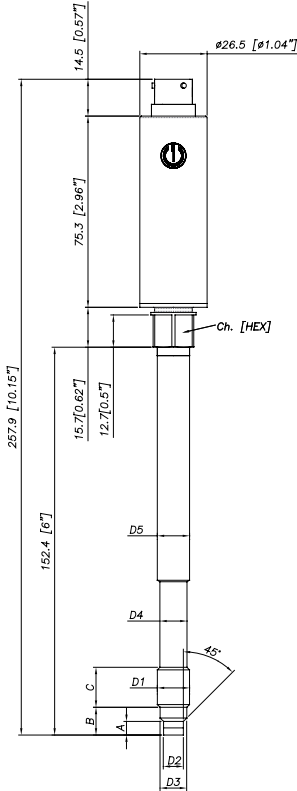
Accuracy (1)	H < $\pm 0.25\%$ FSO (100...1000 bar) M < $\pm 0.5\%$ FSO (35...1000 bar)
Resolution	Infinite
Measurement range	0..35 to 0..1000bar 0..500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FSO 1.5 x FSO over 700bar/10000psi
Measurement principle	Extensimetric
Power supply	15..30Vdc N, C 10..30Vdc B, M
Maximum current absorption	25mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale (FSO)	5Vdc (M) - 10Vdc (N) 5,1Vdc (B) - 10,1Vdc (C)
Zero balance (tolerance $\pm 0.25\%$ FSO)	0Vdc (M, N) 0.1Vdc (B, C)
Zero signals adjustment (tolerance $\pm 0.25\%$ FSO)	"Autozero" function
Span adjustment within $\pm 5\%$ FSO	See Melt manual
Maximum allowed load	1 mA
Response time (10...90% FSO)	~ 1ms
Output noise (RMS 10-400Hz)	< 0.025% FSO
Calibration signal	80% FSO
Output short circuit and reverse polarity protection	YES
Compensated temperature range	0...+85°C
Operating temperature range	-30...+105°C
Storage temperature range	-40...+125°C
Thermal drift in compensated 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
Zero drift temperature for Autocompensated version (SP) within the temperature range 20°C-500°C inclusive the drift temperature of the housing	< 0.005 bar/°C 100 ≤ p < 500 bar 0.0022 %FS/°C p ≥ 500 bar
Thermocouple (model KN2)	STD : tipo "J" (isolated junction)
Protection degree (with 6-pole female connector)	IP65

FSO = Full Scale Output

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

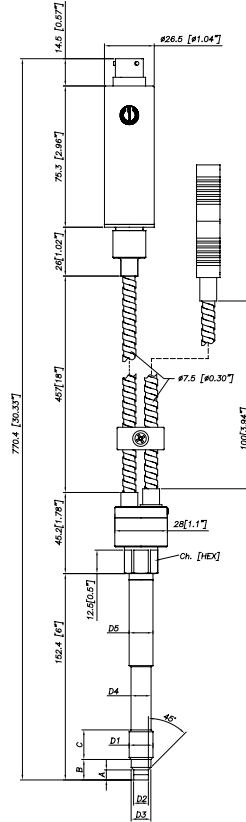
# MECHANICAL DIMENSIONS

## KN0

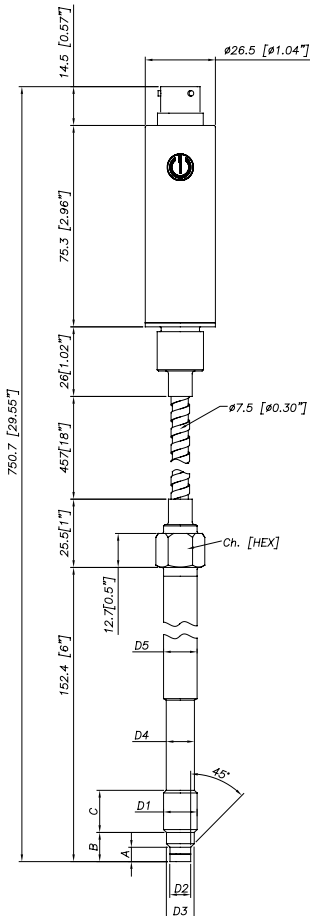


D1	1/2 - 20UNF
D2	Ø7.8 -0.05 [Ø0.31" -0.002]
D3	Ø10.5 -0.025 [Ø0.41" -0.001]
D4	Ø10.67 [Ø0.42"]
D5	Ø12.7 [Ø0.5"]
A	5.56 -0.26 [0.22" -0.01]
B	11.2 [0.44"]
C	15.74 [0.62"]
Ch [Hex]	16 [5/8"]

## KN2

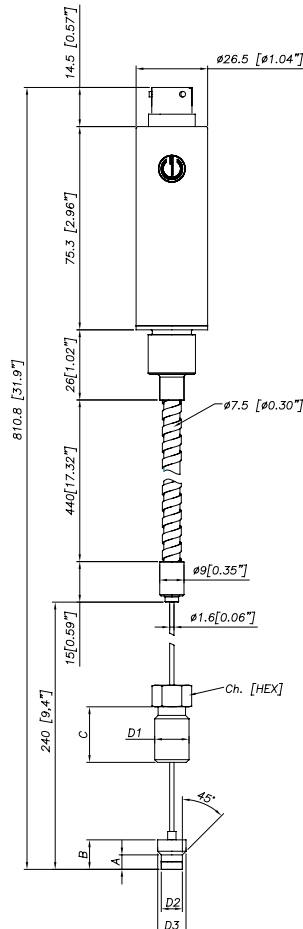


## KN1



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"]

## KN3



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]

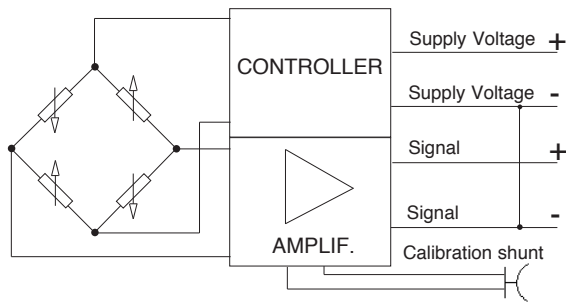
**NOTE :** dimensions refer to rigid stem length option "4" (153 mm – 6")

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

# ELECTRICAL CONNECTIONS

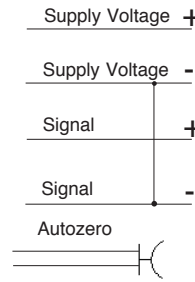
## VOLTAGE OUTPUT (M, N, B, C)

Power supply 15..30Vdc



### MAGNETIC AUTOZERO

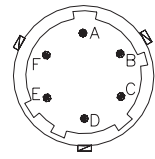
6-pin
C
D
A
B
E - F



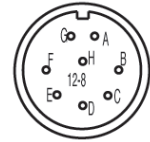
### EXTERNAL AUTOZERO

6-pin
C
D
A
B
E - F

6 pin connector  
VPT07RA10-6PT2  
(PT02A-10-6P)

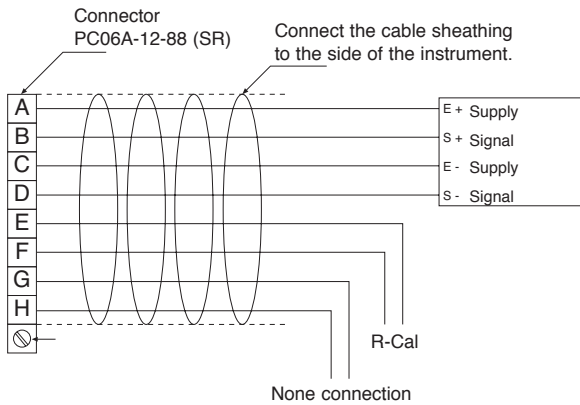


8 pin connector  
PC02E-12-8P Bendix



Shield drain wire is tied to connector via cable clamp

## 8-pin connector



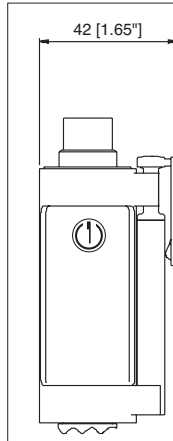
### Magnetic Autozero version

- A = Excitation + (white)
- B = Signal + (red)
- C = Excitation - (green)
- D = Signal - (black)
- E = R-Cal (blue)
- F = R-Cal (brown)
- G = no connection
- H = no connection

### External Autozero version

- A = Excitation + (white)
- B = Signal + (red)
- C = Excitation - (green)
- D = Signal - (black)
- E = Autozero (blue)
- F = Autozero (brown)
- G = no connection
- H = no connection

## AUTOZERO FUNCTION



The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor). See the manual for a complete Autozero function explanation.

# ACCESSORIES

### Connectors

- 6-pin female connector (IP65 protection degree)
- 8-pin female connector

### Extension cables

- 6-pin connector with 8m (25 ft) cable
- 6-pin connector with 15m(50 ft) cable
- 6-pin connector with 25m (75 ft) cable
- 6-pin connector with 30m (100 ft) cable
- 8-pin connector with 15m (50 ft) cable
- 8-pin connector with 25m (75 ft) cable
- 8-pin connector with 30m (100 ft) cable
- Other lengths

### Accessories

- Mounting bracket
- Dummy plug for 1/2-20 UNF
- Dummy plug for M18x1,5
- Drill kit for 1/2 -20 UNF
- Drill kit for M18 x 1,5
- Cleaning kit for 1/2-20 UNF
- Cleaning kit for M18x1,5
- Fixing pen clip
- Autozero pen

**Thermocouple for KN2 model**  
Type "J" (153mm - 6" rigid stem)

- CON300
- CON307

- C08WLS
- C15WLS
- C25WLS
- C30WLS
- E15WLS
- E25WLS
- E30WLS

on request

- SF18
- SC12
- SC18
- KF12
- KF18
- CT12
- CT18
- PKIT309
- PKIT312
- TTER 601

### Cable color code

Conn.	Wire
A	Red
B	Black
C	White
D	Green
E	Blue
F	Orange

# ORDER CODE

**K** - - - - - **000**

Autocompensation (*)	<b>SP</b>
Standard	-
(*) available for ranges > to 100bar (*) not available for version KN3	

<b>OUTPUT SIGNAL</b>	
0 .. 5Vdc	<b>M</b>
0 .. 10Vdc	<b>N</b>
0.1 .. 5.1Vdc	<b>B</b>
0.1 .. 10.1Vdc	<b>C</b>

<b>VERSION</b>	
Rigid stem	<b>0</b>
Rigid + flexible stem	<b>1</b>
With thermocouple	<b>2</b>
Exposed capillary	<b>3</b>

<b>CONNECTOR</b>	
Standard	
6 pin	<b>6</b>
8 pin	<b>8</b>

<b>ACCURACY CLASS</b>	
0.25% FSO (ranges ≥100 bar/1500 psi)	<b>H</b>
0.5% FSO	<b>M</b>

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

<b>THREAD</b>	
Standard	
1/2 - 20 UNF	<b>1</b>
M18 x 1.5	<b>4</b>

000= Standard version  
Special or customized versions available on request

<b>E</b>	External autozero
-	Magnetic autozero

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

<b>FLEXIBLE STEM LENGTH (*)</b> (mm / inches)		
Standard (KN0)		
<b>0</b>	none	
Standard (KN1, KN2)		
<b>D</b>	457mm	18"
<b>E</b>	610mm	24"
<b>F</b>	760mm	30"
Standard (KN3)		
<b>L</b>	711mm	28"
Available on request		
<b>A</b>	76mm	3"
<b>B</b>	152mm	6"
<b>C</b>	300mm	12"

<b>RIGID STEM LENGTH (*)</b> (mm / inches)		
Standard (KN0, KN1, KN2)		
<b>4</b>	153mm	6"
<b>5</b>	318mm	12.5"
Standard (KN3)		
<b>0</b>	none	
Available on request		
<b>1</b>	38mm	1.5"
<b>2</b>	50mm	2"
<b>3</b>	76mm	3"
<b>6</b>	350mm	14"
<b>7</b>	400mm	16"
<b>8</b>	456mm	18"
(*) max combined rigid/flexible stem length is 1000mm - 39"		

## Examples

### KN2-6-M-B07C-1-4-D-I-000

Melt pressure transducer with type "J" thermocouple, 0..10Vdc output, 6-pin connector, 1/2-20UNF thread, 700 bar pressure range, 0.5% accuracy class, 153 mm (6") rigid stem, 457mm (18") flexible stem, Inconel 718 diaphragm.

### KSPM0-6-M-P03M-1-4-0-I-000

Melt pressure transducer autocompensated version, rigid stem, 0..5Vdc output, 6-pin connector, 1/2-20UNF thread, 3000 psi pressure range, 0.5% accuracy class, 153 mm (6") rigid stem Inconel 718 diaphragm.

Sensors are manufactured in compliance with:

- EMC 2004/108/CE compatibility directive
- RoHS 2002/95/CE directive

Electrical installation requirements and Conformity certificate are available on our web site: [www.gefran.com](http://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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