# GEFRAN MELT PRESSURE TRANSMITTERS K7 SERIES PERFORMANCE LEVEL 'c'

Voltage output



The K7 Performance Level 'c' series of Gefran are pressure transmitters for using in high temperature environment. The main characteristic of this series is the capability to read temperature of the media up to 538°C (1000°F).

The constructive principle is based on the hydraulic trasmission of the pressure.

The fluid-filled system assures the temperature stability NaK (Sodium/Potassium).

The phisical measure is transformed in a electrical measure by means of thick film on stainless steel technology.

#### MAIN FEATURES

- Pressure ranges from: 0-17 ato 0-1000 bar / 0-250 to 0-15000 psi
- Accuracy: < ±0.25% FSO (H); < ±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: K70 series (30mm<sup>3</sup>) [0.00183 in<sup>3</sup>], K71, K72, K73 (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
- 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.

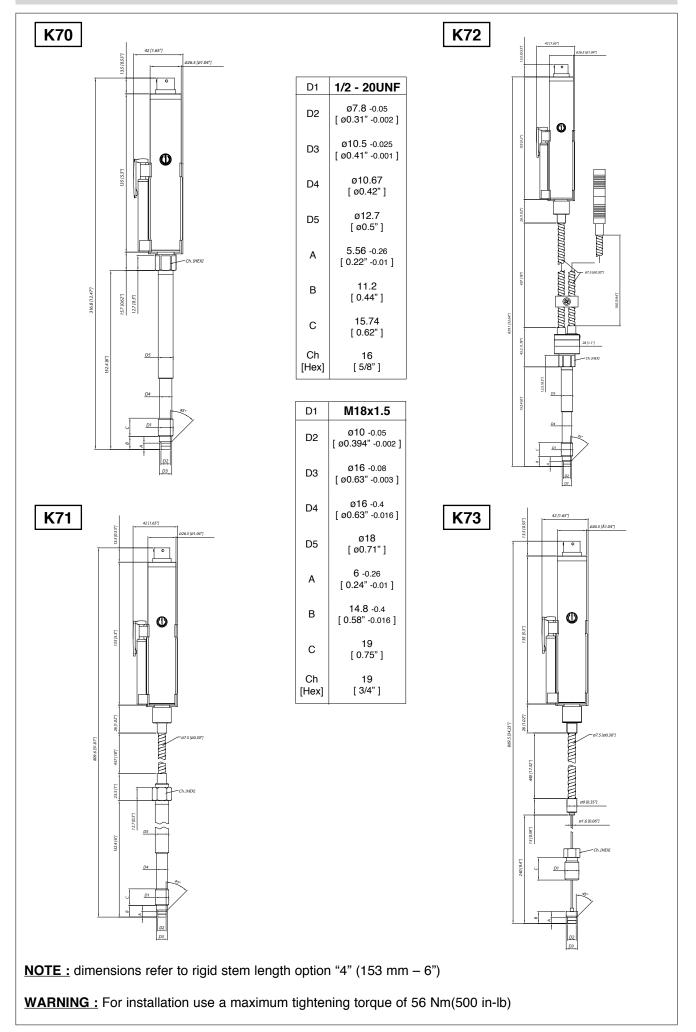
This function is activated by closing a magnetic contact located in the electronic transmitter or by an external contact.

The procedure is allowed only at zero" pressure.

## **TECHNICAL SPECIFICATIONS**

Accuracy (1)	H <±0.25% FSO (1001000 bar) M <±0.5% FSO (171000 bar)					
Resolution	16 bit					
Measurement range	017 to 01000bar 0250 to 015000psi					
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 700bar/10000psi					
Measurement principle	Extensimetric					
Power supply	1830Vdc					
Maximum current absorption	15mA (30mA with optional relay)					
Output signal Full Scale (FSO)	10,5Vdc					
Zero balance (tollerance ± 0.25% FSO)	0,5Vdc					
Response time (1090% FSO)	8ms					
Output noise (RMS 10-400Hz)	< 0.025% FSO					
Calibration signal	80% FSO					
Power supply polarity reverse protection	YES					
Compensed temperature range housing	0+85°C					
Operating temperature range housing	-30+85°C					
Storage temperature range housing	-40+125°C					
Thermal drift in compesated range: Zero / Calibration / Sensibility	< 0.02% FSO/°C					
Diaphragm maximum temperature	538°C / 1000°F					
Zero drift due to change in process temperature (zero)	< 3.5 bar/100°C / < 28 psi/100°F					
Thermocouple (model K72)	STD : type "J" (isolated junction)					
Protection degree (6-pole female connect)	IP65					
FSO = Full scale output: (1) BFSL method (Br bined effects of Non-Linearity, Hysteresis and						

### **MECHANICAL DIMENSIONS**



# SELF DIAGNOSTICS

Below the conditions detected by the sensor self-diagnostics:

- · Cut cable / device non connected / broken power supply, output <0.25V
- Pin detachment, output >11.125V
- $\cdot$  Pressure above 200% of the span, output <11.125V
- · Voltage monitor in case of overvoltage/undervoltage/voltage variation in the electronics, output <0,25V
- Program sequence error, output < 0.25V
- · Overtemperature on the electronics, output <0.25V
- · Error on the primary element output or on the first amplification stage, output <0.25V

### **OPTIONAL RELAY OUTPUT FOR EXCESS PRESSURE PROTECTION**

Safety relay characteristics:

- Activation threshold to be defined in the order code
- · Rated carry current: 1A
- Rated voltage: 24Vdc ± 20%
- Switch accuracy: 2 x sensor accuracy
- Hysteresis: 2% FSO

SUPPLY	OUTPUT	RELAY STATUS
OFF	-	OPEN
ON	< X%fs	CLOSED
ON	> X%fs	OPEN
ON	output < 0.25V	OPEN
ON	output > 11.125V	OPEN

#### NAMUR COMPLIANCE

## **AUTOZERO FUNCTION**

The sensors are tested according to Namur NE21 recommendations.

The same compatibility is valid for the NE43 Namur recommendation with the following sensor behaviour in case of breakdown:

- · Cut cable: breakdown information as the signal is <0.25V
- Device not connected: breakdown information as the signal is <0.25V
- Broken power-supply: breakdown information as the signal is <0.25V

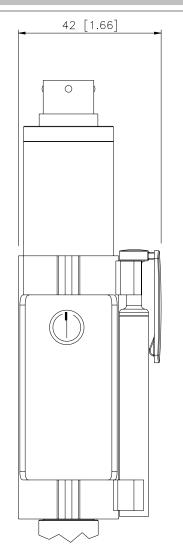
or in case of performance problems:

 $\cdot$  most common failures on primary sensors: the signal goes to  ${>}11.125V$ 

Note: in all the remaining situations, the output signal is always included between 0.25V and 11.125V.



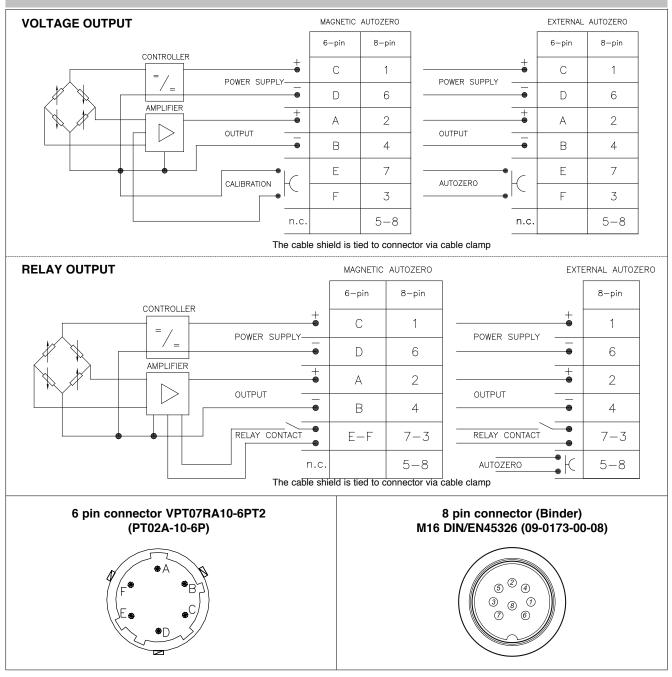
**Recommendation**: the error level set by the customer (e.g. maximum pressure value) has to be inside the nominal range



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		Accessories			Cable color code		
6-pin female connector (IP65 protection degree)	CON300	Mounting bracket	SF18		Wire		
8-pin female connector (IP65 protection degree)	CON027	Dummy plug for 1/2-20UNF	SC12	A-2	Red		
		Dummy plug for M18x1.5	SC18	B-4	Black		
Extension cables		Drill kit for 1/2-20UNF	KF12	C-1 D-6	White Green		
6-pin connector with 8m (25ft) cable	C08WLS	Drill kit for M18x1.5	KF18	E-7	Blue		
6-pin connector with 15m (50ft) cable	C15WLS	Cleaning kit for 1/2-20UNF	CT12	F-3	Orange		
6-pin connector with 25m (75ft) cable	C25WLS	Cleaning kit for M18x1.5	CT18	5 8	Grey Pink		
6-pin connector with 30m (100ft) cable	C30WLS	Fixing pen clip	PKIT 379	0	TIIK		
8-pin connector with 8m (25ft) cable	C08WLS8	Autozero pen	PKIT 378				
8-pin connector with 15m (50ft) cable	C15WLS8						
8-pin connector with 25m (75ft) cable	C25WLS8	Thermocouple for K72 model					
8-pin connector with 30m (100ft) cable)	C30WLS8	Type "J" (153mm - 6" rigid rod)	<b>TTER 601</b>				

#### **ORDER CODE**

			<b>K</b>	□-[ 	 <b>T</b> T-[	]-[	]-[]	 -	Output	Relay Version (a ld): X = no rela A = 70% fs	activation
	OUTPUT	SIGNAL							000=	Esecuzioni	speciali
	0,510,5V	7									
									E		utozero (*)
									-	Magnetic /	he CAL function
		VERSION								alternative to t	
Divid	Rigid rod								Р	Performan	ce Level='c'
-	+ flexible rod										
	hermocouple								CONTAC		AGM
Expo	sed capillary	3							I	INCONEL 7	718 (538°C*)
									S	15-5 PH (4	400°C*)
		NECTOR		_					н		DY C276 (300°
	6 pin								(*) max ter	nperature	
	8 pin	8									
	ACCURACY CLASS							 	FLEXIBLI (mm/inches	E ROD LEN	GTH (*)
0.25% F	SO (ranges ≥	н							Standard	(K70)	
100	0 bar/1500 psi)	п							0	none	
	0.5% FSO	М							Standard	(K71, K72)	1
									D	457mm	18"
	MEA	SUREMEN	NT RANGE						E F	610mm 760mm	24" 30"
ba	r (*)	ps	i (*)						F Standard		
17	B17U	250	P25D						L	711mm	28"
35	B35U	500	P05C						Available	on request	t
50	B05D	750	P75D						Α	76mm	3"
70	B07D	1000	P01M						В	152mm	6"
100	B01C	1500	P15C						С	300mm	12"
200	B02C	3000	P03M								
350	B35D	5000	P05M					 	(mm/inche		(*)
500	B05C	7500	P75C							(K70, K71,	K72)
			DIOM						4	153mm	6"
700	B07C	10000	PIUM			1					10 5"
700 1000	B07C B01M	10000 15000	P10M P15M						5	318mm	12.5"
1000	B01M	15000	P15M						5 Standard		12.5
1000 (*) Hastell		15000 n not availa	P15M able for						Standard 0	(K73) none	
1000 (*) Hastell	<b>B01M</b> oy diaphragn re range ≤ 70	15000 n not availa ) bar (1000	P15M able for						Standard 0 Available	(K73) none on request	t
1000 (*) Hastell	B01M oy diaphragn re range ≤ 70 THF	15000 n not availa ) bar (1000 <b>READING</b>	P15M able for						Standard 0 Available 1	(K73) none on request 38mm	t 1,5"
1000 (*) Hastell pressur	B01M oy diaphragn re range ≤ 70 THF	15000 n not availa ) bar (1000 READING Standard	P15M able for						Standard 0 Available 1 2	(K73) none on request 38mm 50mm	t 1,5" 2"
1000 (*) Hastell pressur	B01M oy diaphragn re range ≤ 70 THF 1/2 - 20 UNF	15000 n not availa bar (1000 READING Standard 1	P15M able for						Standard 0 Available 1 2 3	(K73) none on request 38mm 50mm 76mm	t 1,5" 2" 3"
1000 (*) Hastell pressur	B01M oy diaphragn re range ≤ 70 THF	15000 n not availa bar (1000 READING Standard 1	P15M able for		 				Standard 0 Available 1 2	(K73) none on request 38mm 50mm	t 1,5" 2"

Example

#### K71-6-M-B07C-1-4-D-I-P

Melt pressure transducer 0,5...10,5Vdc output, 6-pin connector, 1/2-20 UNF threading, 700 bar pressure range, 0.5% accuracy, 153 mm (6") rigid rod, 457 mm (18") flexible rod; membrane Inconel 718; Performance Level='c'.

Sensors are manufactured in compliance with:

- EMC directive
- RoHS directive
- machinery directive

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

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



GEFRAN spa via Sebina, 74 25050 PROVAGLIO D'ISEO (BS) - ITALIA tel. 0309888.1 - fax. 0309839063 Internet: http://www.gefran.com (\*) Different lengths available, consult

Factory