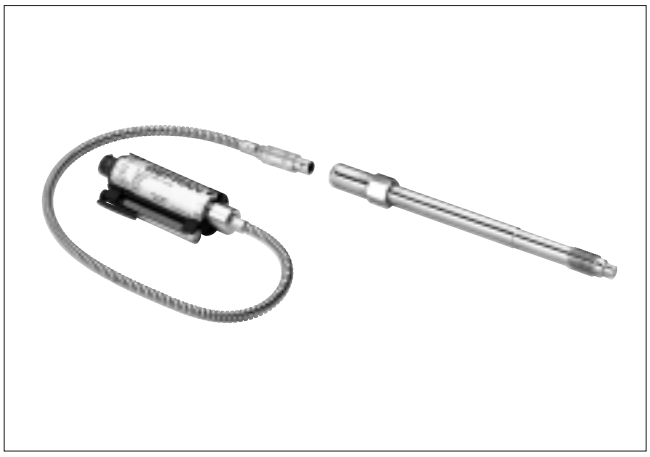
GEFRAN

MELT PRESSURE TRANSMITTERS

IE SERIES *Output 4...20mA*



IMPACT D

The “IMPACT” series of Gefran, are pressure transmitters, without transmission fluid, for using in High temperature environment (350°C).
Medium pressure is transferred directly to the sensitive silicon element via a thick diaphragm.
Strain is transduced by a micro-worked silicon structure (MEMS).
The operating principle is piezoresistive.

“IMPACT” is Gefran’s exclusive series of high-temperature pressure sensors that use the piezoresistive principle.
The main characteristic of “IMPACT” sensors is that they do not contain any transmission fluid.
The sensitive element, directly positioned behind the contact membrane, is realised in silicon through microprocessing techniques.
The micro structure includes the measurement membrane and piezoresistors.
The minimum deflection required by the sensitive element makes it possible to use very robust mechanics.
The process contact membrane can be up to 15 times thicker than the membrane used in traditional Melt sensors.

ADVANTAGES

- Total compatibility with the European RoHS Directive
- High strength
- Long life
- Working temperature: up to 350°C
- Excellent read stability over time
- Fast response time < 1ms

MAIN FEATURES

- Pressure ranges:
  0-100 to 0-1000 bar / 0-1500 to 0-15000 psi
- Accuracy: < ±0.25% FSO (H); < ±0.5% FSO (M)
- Standard threading 1/2-20UNF, M18x1.5; other versions on request
- Other types of diaphragms are available on request
- Autozero function on board / external option
- 15-5 PH stainless steel diaphragm GTP coated

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 or by means of external autozero.
The procedure is permitted only with pressure at zero”.
The Autozero function should be activated ONLY when the sensor is completely installed on the system.

TECHNICAL SPECIFICATIONS

Accuracy (1)	**H** <±0.25%FSO **M** <±0.5%FSO
Resolution	Infinite
Measurement range	0..100 to 0..1000bar 0..1500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 700bar/10000psi
Measurement principle	Piezoresistivo
Power supply	10...30Vdc
Maximum current absorption	32mA
Insulation resistance (at 50Vdc)	>1000 MOhm
Output signal Full Scale FSO	20mA
Zero balance (tollerance ± 0.25% FSO)	4mA
Zero signals adjustment (tollerance ± 0.25% FSO)	“Autozero” function
Maximum allowed load	See diagram
Response time (10...90% FSO)	8ms (option 1ms)
Output noise (RMS 10-400Hz)	< 0.025% FSO
Calibration signal	80% FSO
Output short circuit ingress and reverse polarity protection	YES
Voltage spike protection	> 2KV burst test, to EN61000-4-4
CE conformity (89/336 direttive)	EMC Emission EN61000-6-3 EMC Immunity EN61000-6-2 (10V/m)
Compensed temperature range housing	0...+85°C
Operating temperature range housing	-30...+105°C
Storage temperature range housin	-40...+125°C
Maximum diaphragm temperature	350°C
Zero signal variation due to process temperature variation in range (20-350°C)	< ± 1,2%FSO
Full-scale signal variation due to process temperature variation in range (20-350°C)	< ± 1%FSO
Std contact diaphragm with process	15-5 PH GTP
Protection degree (with 6-pole female connector)	IP65 IP54 soluzione modulare
Electrical connection	Conn. 6-pin VPT07RA10-6PT (PT02A-10-6P) Conn. 8-pin PC02E-12-8P

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

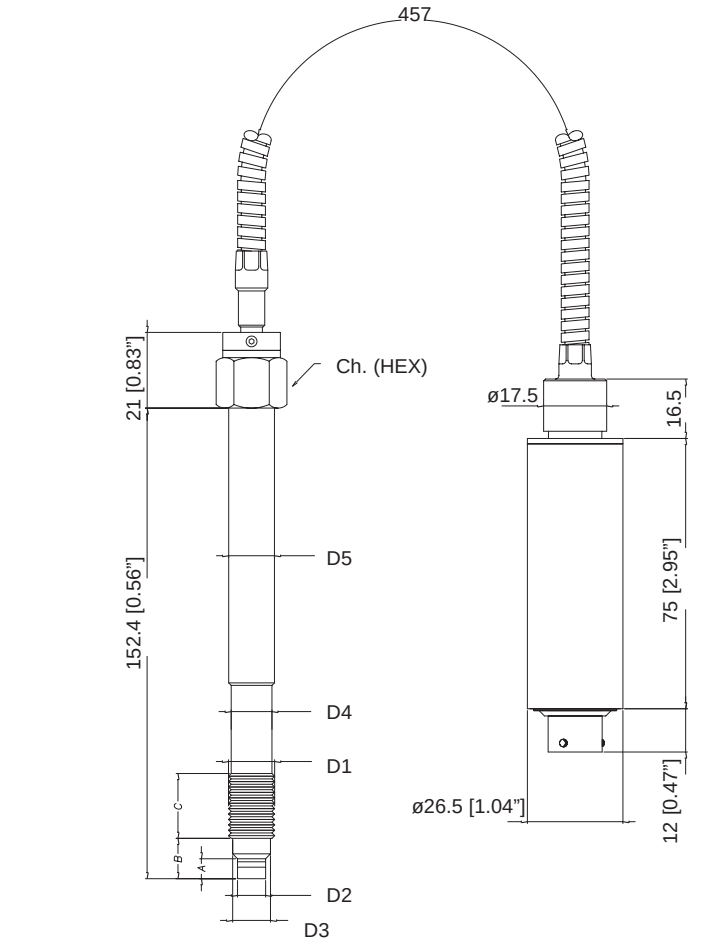
MECHANICAL DIMENSIONS

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"]

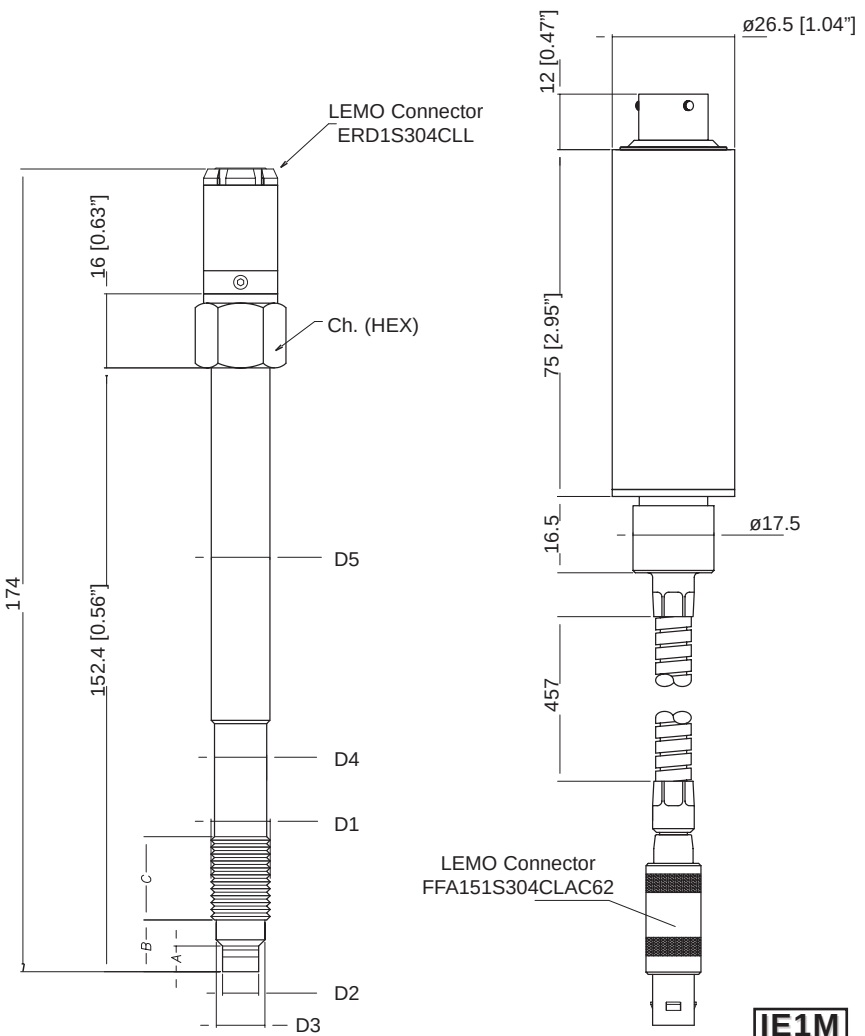
D1	**M18x1.5**
D2	ø10 -0.05 [ø0.394" -0.002]
D3	ø16 -0.08 [ø0.63" -0.003]
D4	ø16 -0.4 [ø0.63" -0.016]
D5	ø18 [ø0.71"]
A	6 -0.26 [0.24" -0.01]
B	14.8 -0.4 [0.58" -0.016]
C	19 [0.75"]
Ch [Hex]	19 [3/4"]

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

WARNING :
For installation use a maximum tightening torque of 40 Nm (355 in-lb)



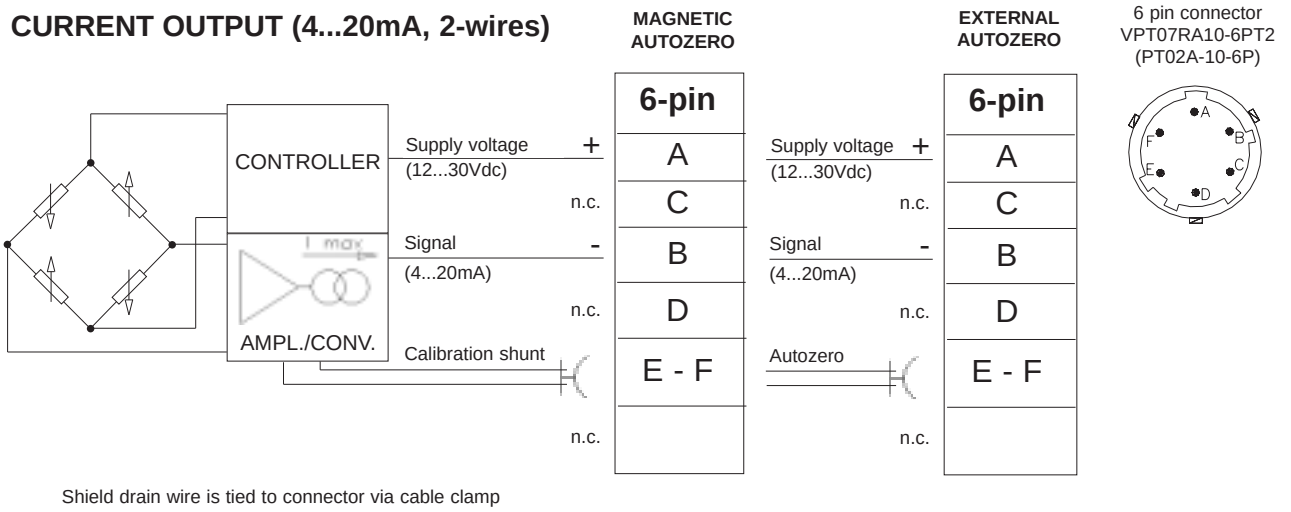
IE1S



IE1M

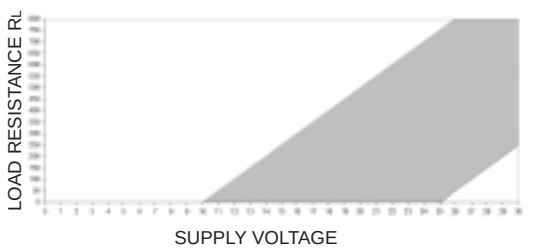
ELECTRICAL CONNECTIONS

CURRENT OUTPUT (4...20mA, 2-wires)



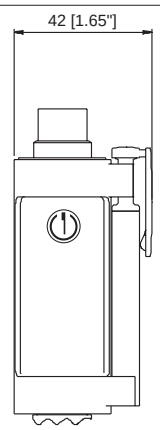
Shield drain wire is tied to connector via cable clamp

LOAD DIAGRAM



The diagram shows the optimum ratio between load and power supply for transmitters with 4…20mA output.
For correct function, use a combination of load resistance and voltage that falls within the shaded area.

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)	**CON300**
8-pin female connector	**CON307**

Extension cables

6-pin connector with 8m (25ft) cable	**C08WLS**
6-pin connector with 15m (50ft) cable	**C15WLS**
6-pin connector with 25m (75ft) cable	**C25WLS**
6-pin connector with 30m (100ft) cable	**C30WLS**
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**
Fixing pen clip	**PKIT309**
Autozero pen	**PKIT312**

Cable color code

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

ORDER CODE

I -□-□-□-□-□-□□□□-□-□-□-□-000

OUTPUT SIGNAL	
4...20mA	**E**

VERSION	
Rigid + flexible stem	**1**

MECHANICS	
SINGLE	**S**
MODULAR	**M**

CONNECTOR	
6 pin	**6**

ACCURACY CLASS	
0.25% FSO	**H**
0.5% FSO	**M**

RANGE			
bar		psi	
100	**B01C**	**1500**	**P15C**
200	**B02C**	**3000**	**P03M**
350	**B35D**	**5000**	**P05M**
500	**B05C**	**7500**	**P75C**
700	**B07C**	**10000**	**P10M**
1000	**B01M**	**15000**	**P15M**

000= Standard version
Special or customized versions available on request

E	External autozero
-	Magnetic autozero

FLEXIBLE STEM LENGTH (mm / inches)		
D	457mm	18”
E	610mm	24”
F	760mm	30”

RIGID STEM LENGTH (mm / inches)		
4	153mm	6”
5	318mm	12.5”
Available on request		
3	76mm	3”
6	350mm	14”
7	400mm	16”
8	456mm	18”

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

Examples

IE1S-6-M-B07C-1-4-D-000
Melt pressure transducer without filling, 4…20mA output, 6-pin connector, 1/2-20 UNF threading, 700 bar pressure range, 0.5% precision level, 153 mm (6”) rigid stem, 457 mm (18”) flexible stem.

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