

The WE Performance Level 'c' series of GEFRA, 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 315°C.

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

The fluid-filled system assures the temperature stability. The physical measure is transformed in a electrical measure by means the strain-gauge technology.

#### 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)
- Fluid-filled system for temperature stability
- Oil filling meets FDA requirements CFR 178.3620 and CFR 172.878
- Oil filling volume:  
WE0 (30mm<sup>3</sup>); WE1, WE2 (40mm<sup>3</sup>)
- 1/2-20UNF, M18x1.5 standard threads; other types available on request
- Other diaphragms available on request
- Autozero function on board / external option
- 17-7 PH corrugated diaphragm with GTP coating

*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.

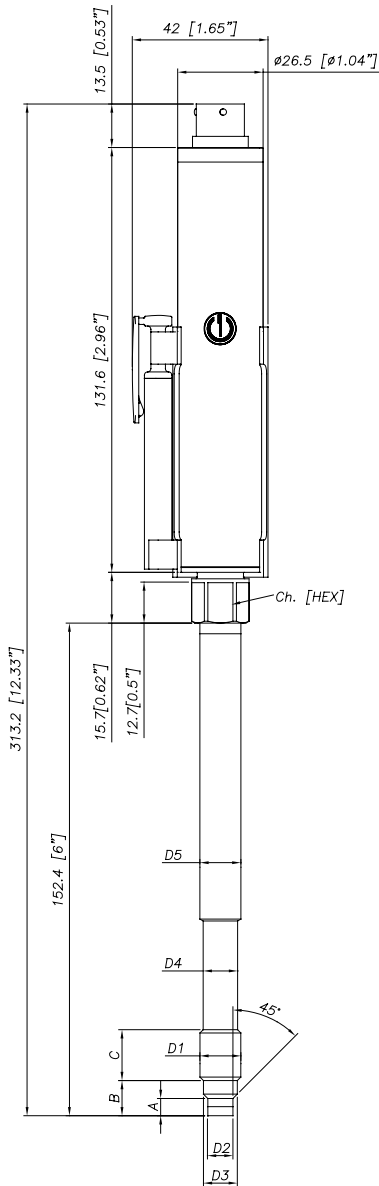
#### TECHNICAL SPECIFICATIONS

Accuracy (1)	<b>H</b> $< \pm 0.25\%$ FSO (100...1000 bar) <b>M</b> $< \pm 0.5\%$ FSO (35...1000 bar)
Resolution	16 bit
Measurement range	0..35 a 0..1000bar 0..500 a 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS oltre i 500bar/7500psi
Measurement principle	Extensimetric
Power supply	13...30Vdc
Maximum current absorption	23mA (40mA with relay optional)
Output signal Full Scale FSO	20mA
Zero balance (tolerance $\pm 0.25\%$ FSO)	4mA
Response time (10...90% FSO)	8ms
Output noise (RMS 10-400Hz)	$< 0.025\%$ FSO
Calibration signal	80% FSO
Power supply polarity reverse protection	YES
Compensated temperature range housing	0...+85°C
Operating temperature range housing	-30...+85°C
Storage temperature range housing	-40...+125°C
Thermal drift in compensated range: Zero / Calibration / Sensibility	$< 0.02\%$ FSO/°C
Diaphragm maximum temperature	315°C / 600°F
Zero drift due to change in process temperature (zero)	$< 0.04$ bar/°C
Standard material in contact with process medium	Diaphragm: • 17-7 PH corrugated diaphragm with GTP Stem: • 17-4 PH
Thermocouple (model WE2)	STD : type "J" (isolated junction)
Protection degree (with 6-pole female connector)	IP65

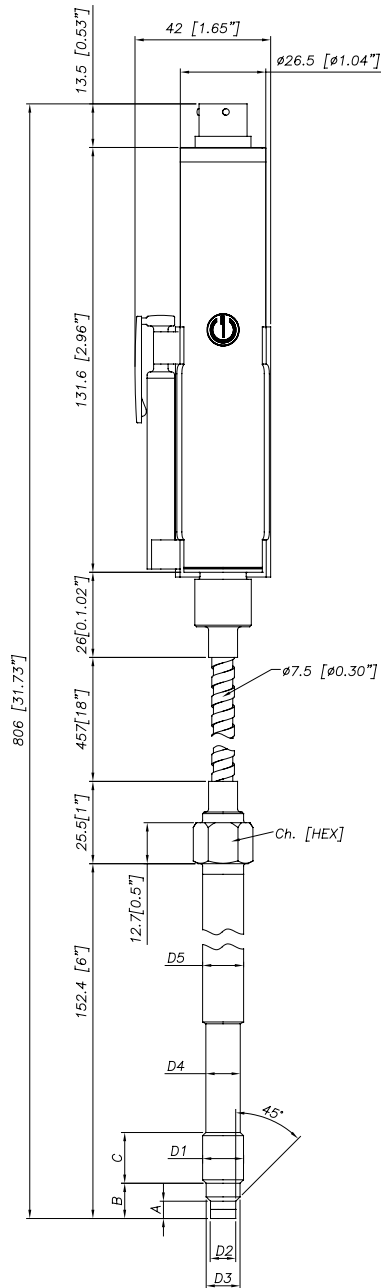
FSO = Full scale output : (1) BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability.

# MECHANICAL DIMENSIONS

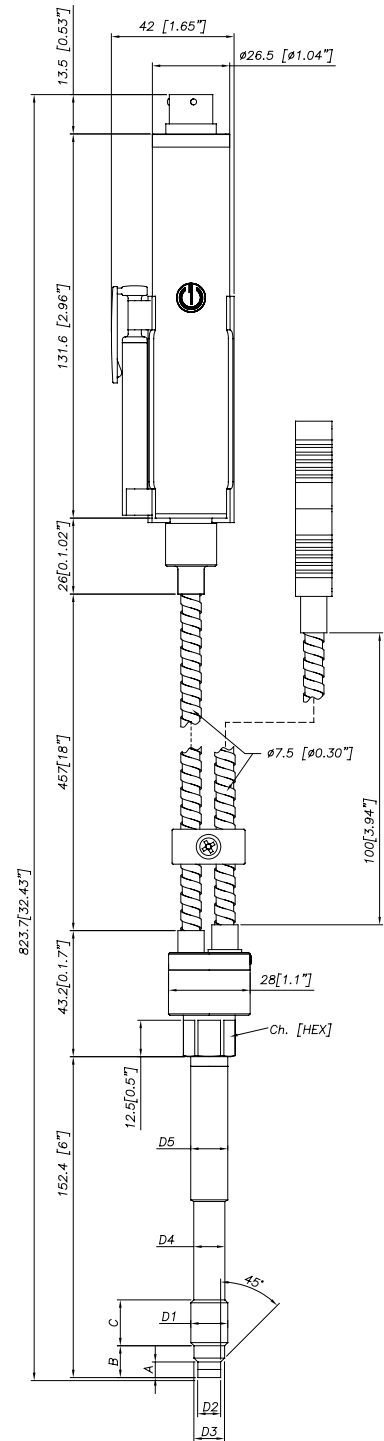
**WE0**



**WE1**



**WE2**



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 56 Nm (500 in-lb)

## SELF DIAGNOSTICS

Below the conditions detected by the sensor self-diagnostics:

- Cut cable / device non connected / broken power supply, output <3.6mA
- Pin detachment, output >21mA
- Pressure above 200% of the span, output >21mA
- Voltage monitor in case of overvoltage/undervoltage/voltage variation in the electronics, output <3.6mA
- Program sequence error, output <3.6mA
- Overtemperature on the electronics, output <3.6mA
- Error on the primary element output or on the first amplification stage, output <3.6mA

## 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  $\pm$  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 < 3,6mA	OPEN
ON	output > 21mA	OPEN

## NAMUR COMPLIANCE

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:

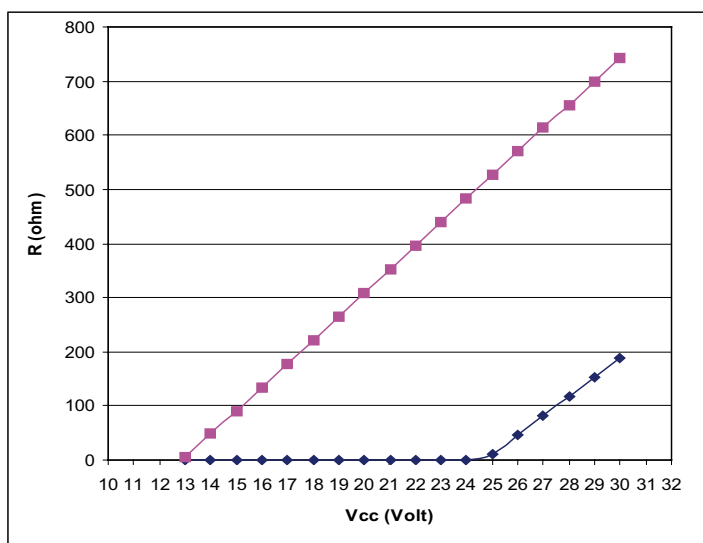
- Cut cable: breakdown information as the signal is <3,6mA
- Device not connected: breakdown information as the signal is <3,6mA
- Broken power-supply: breakdown information as the signal is <3,6mA or in case of performance problems:
- most common failures on primary sensors: the signal goes to >21mA

Note: in all the remaining situations, the output signal is always included between 3,6 and 21mA.



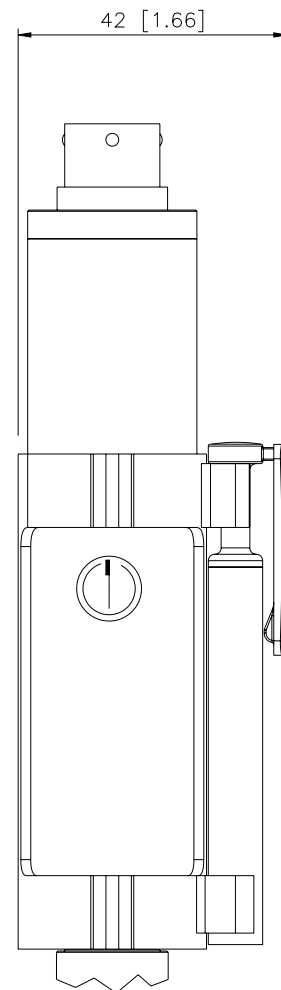
**Recommendation:** the error level set by the customer (e.g. maximum pressure value) has to be inside the nominal range.

## 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 two lines in the graph above.

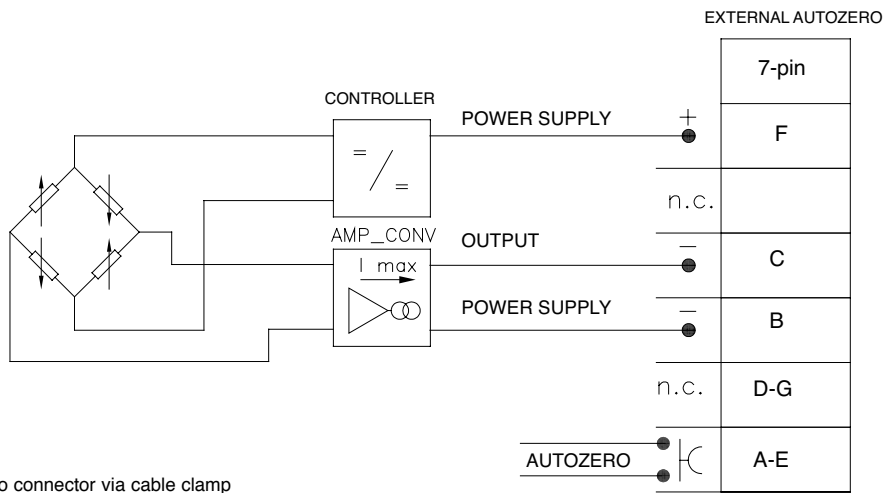
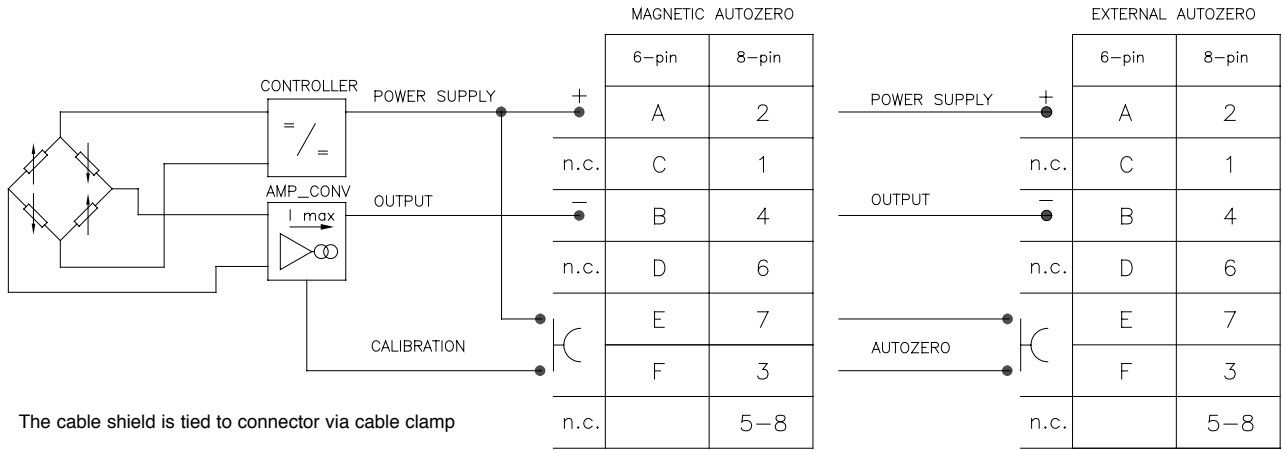
## AUTOZERO FUNCTION



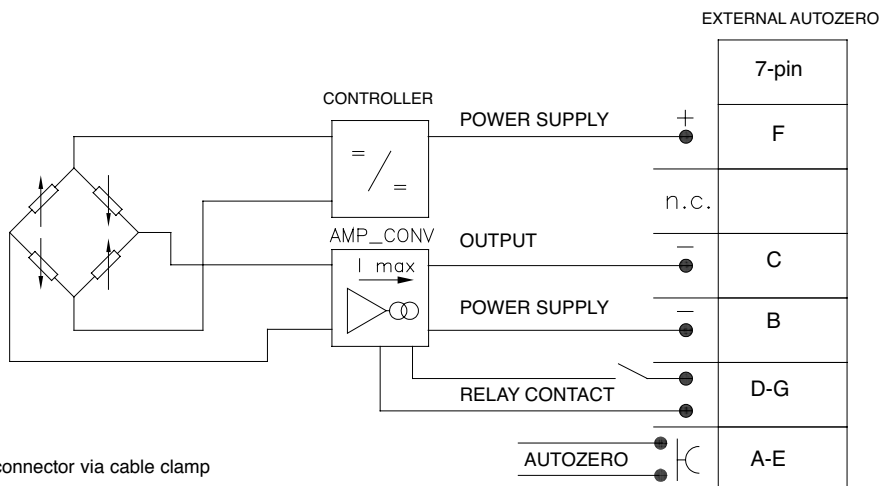
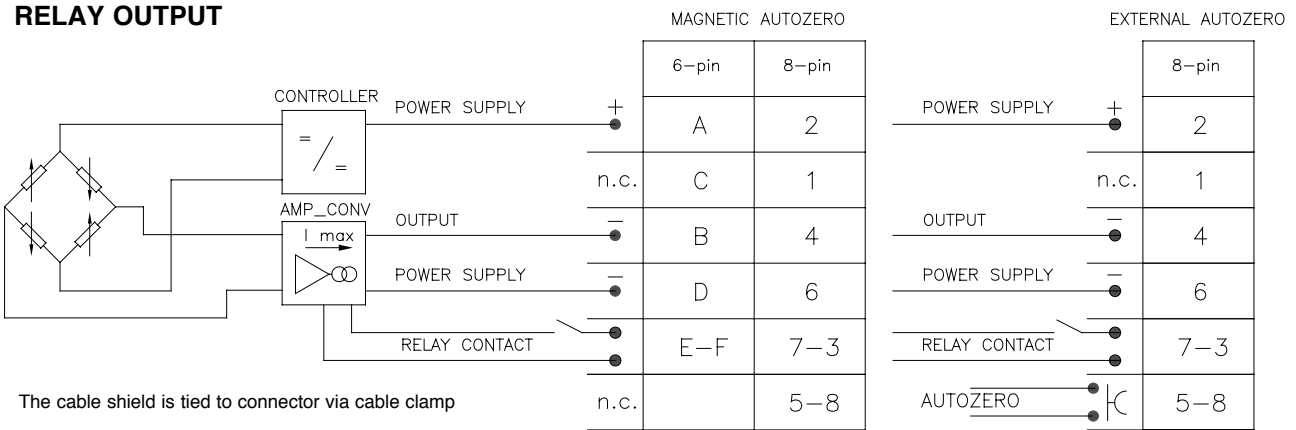
The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor). See the manual for a complete Autozero function explanation.

# ELECTRICAL CONNECTIONS

## CURRENT OUTPUT

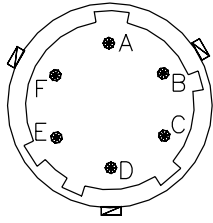


## RELAY OUTPUT

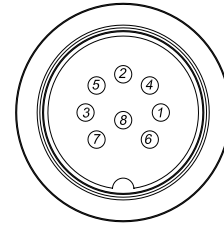


## ELECTRICAL CONNECTIONS

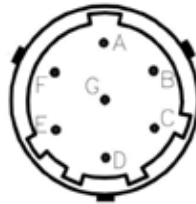
**6 pin connector VPT07RA10-6PT2  
(PT02A-10-6P)**



**8 pin connector (Binder)  
M16 DIN/EN45326 (09-0173-00-08)**



**7 pin connector (AMPHENOL) 62IN-5016-10-7P-4-M**



## ACCESSORIES

### Connectors

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

**CON300**  
**CON345**  
**CON026**

### Extension cables

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

**C08WLS**  
**C15WLS**  
**C25WLS**  
**C30WLS**

### Accessories

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

**SF18**  
**SC12**  
**SC18**  
**KF12**  
**KF18**  
**CT12**  
**CT18**  
**PKIT 379**  
**PKIT 378**

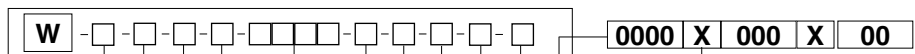
### Thermocouple for WE2 model

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

**TTER 601**

Cable color code	
Conn.	Wire
A-2	Red
B-4	Black
C-1	White
D-6	Green
E-7	Blue
F-3	Orange
5	Grey
8	Pink

# ORDER CODE



OUTPUT SIGNAL	
4...20mA	<b>E</b>

CONFIGURATION	
Rigid stem	<b>0</b>
Rigid stem + flexible	<b>1</b>
With thermocouple	<b>2</b>

CONNECTOR	
6 pin	<b>6</b>
7 pin	<b>7</b>
8 pin	<b>8</b>

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

RANGE			
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>

**0000 X 000 X 00**

Output Relay Version  
(activation threshold):  
X=no relay    B=80%fs  
A=70%fs    C=90%fs

000= Special executions

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

(\* ) as an alternative to the CAL function

<b>P</b>	Performance Level='c'
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**FLEXIBLE LENGTH**  
(mm / inches) (\*)

**Standard (WE0)**

<b>0</b>	None
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**Standard (WE1, WE2)**

<b>D</b>	457mm	18"
<b>E</b>	610mm	24"
<b>F</b>	760mm	30"

**Available on request**

<b>A</b>	76mm	3"
<b>B</b>	152mm	6"
<b>C</b>	300mm	12"

**RIGID STEM LENGTH**  
(mm / inches) (\*)

**Standard (WE0, WE1, WE2)**

<b>4</b>	153mm	6"
<b>5</b>	318mm	12,5"

**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 stem/flexible length is 914mm - 36"

**THREAD**

**Standard**

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

Example

**WE1-6-M-B07C-1-4-D-P**

Melt pressure transducer, 4...20mA 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; Performance Level='c'.

Sensors are manufactured in compliance with:

- EMC 2004/108/CE compatibility directive
- RoHS 2002/95/CE directive
- 2006/42/CE machinery directive

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

