



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

MAIN FEATURES

- Pressure ranges:
0-100 to 0-1000 bar / 0-1500 to 0-15000 psi
- Accuracy: $< \pm 0.25\%$ FSO (H); $< \pm 0.5\%$ FSO (M)
- Standard threading 1/2-20UNF, M18x1.5
- 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 electronics or by an external contact.

The procedure is allowed only at zero pressure.

The Autozero function should be activated **ONLY** when the sensor is completely installed on the system.

TECHNICAL SPECIFICATIONS

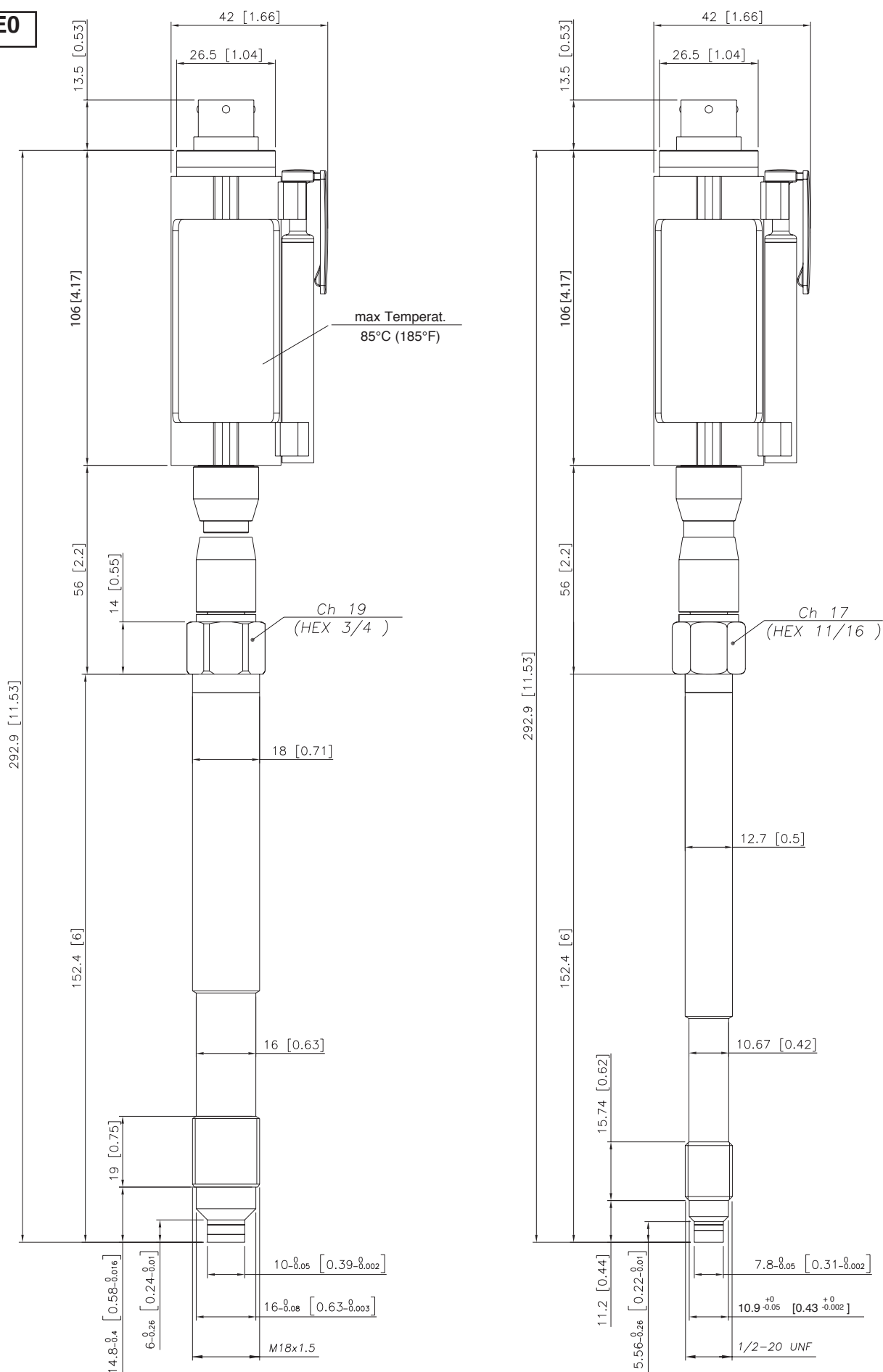
Accuracy (1)	H $< \pm 0.25\%$ FSO M $< \pm 0.5\%$ FSO
Resolution	16 Bit
Measurement range	0..100 to 0..1000bar 0..1500 to 0..15000psi
Maximum overpressure (without degrading performances)	2 x FS 1.5 x FS above 700bar/10000psi
Measurement principle	Piezoresistive
Power supply	13...30Vdc
Maximum current absorption	23 mA (40 mA with optional relay)
Output signal Full Scale FSO	20mA
Zero balance (tolerance $\pm 0.25\%$ FSO)	4mA
Zero signals adjustment (tolerance $\pm 0.25\%$ FSO)	"Autozero" function
Response time (10...90% FSO)	8ms
Output noise (RMS 10-400Hz)	$< 0.025\%$ FSO
Calibration signal	80% FSO
Reverse polarity protection	YES
Compensated temperature range housing	0...+85°C
Operating temperature range housing	-30...+85°C
Storage temperature range housing	-40...+125°C
Maximum diaphragm temperature	350°C / 660°F
Zero signal variation due to process temperature variation in range (20-350°C)	$< \pm 1,2\%$ FSO
Full-scale signal variation due to process temperature variation in range (20-350°C)	$< \pm 1\%$ FSO
Std contact diaphragm with process Thermocouple (model IE2)	15-5 PH GTP STD: type "J" (isolated junction) type "K" (on request)
Protection degree (with 6-pole female connector)	IP65
Electrical connection	Conn. 6-pin VPT07RA10-6PT (PT02A-10-6P) Conn. 8-pin (Binder) M16 DIN/EN45326 (09-0173-00-08)

FSO = Full scale output

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

MECHANICAL DIMENSIONS

IE0

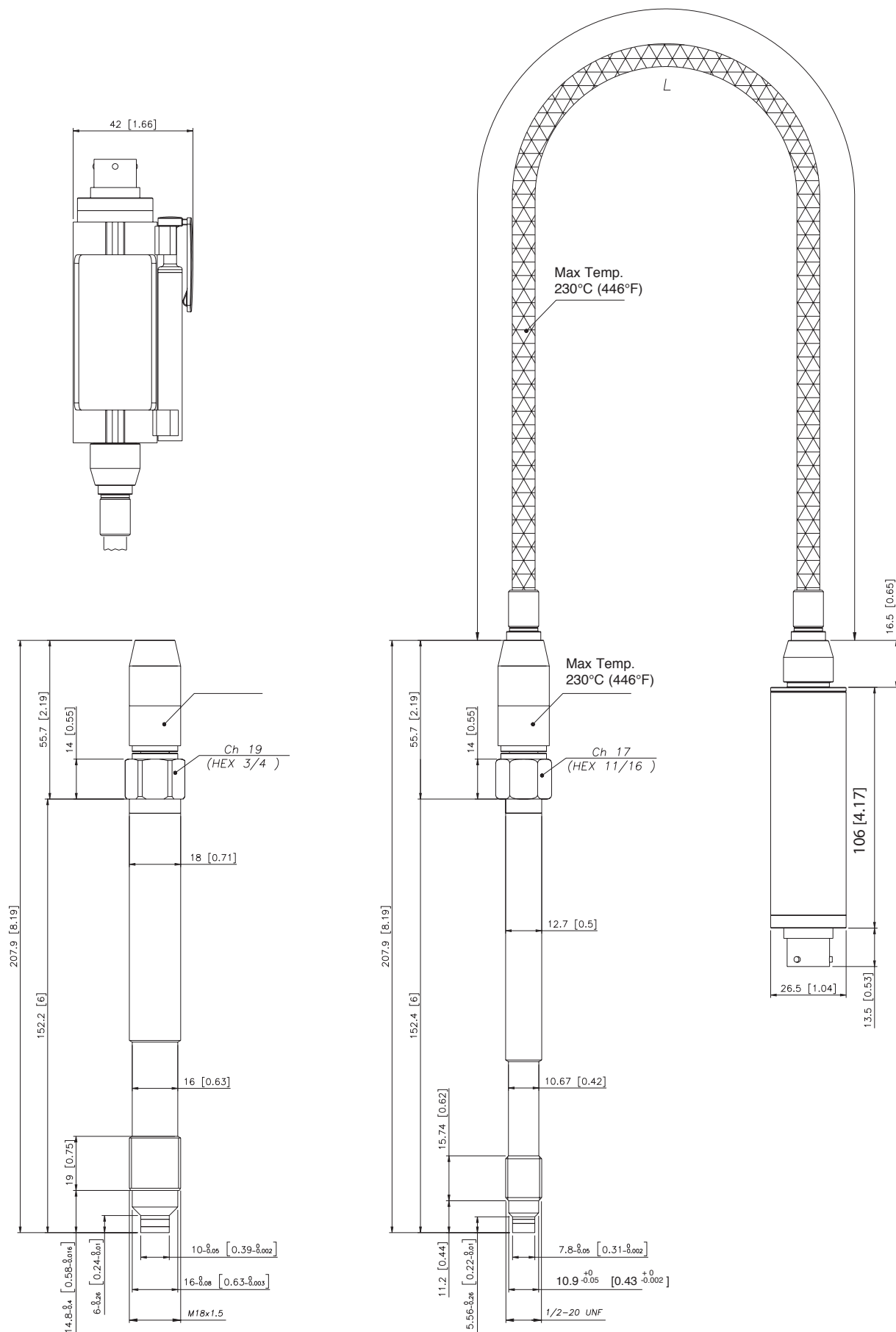


NOTE : dimensions refer to rigid stem length option "4" (153 mm – 6")

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

MECHANICAL DIMENSIONS

IE1S

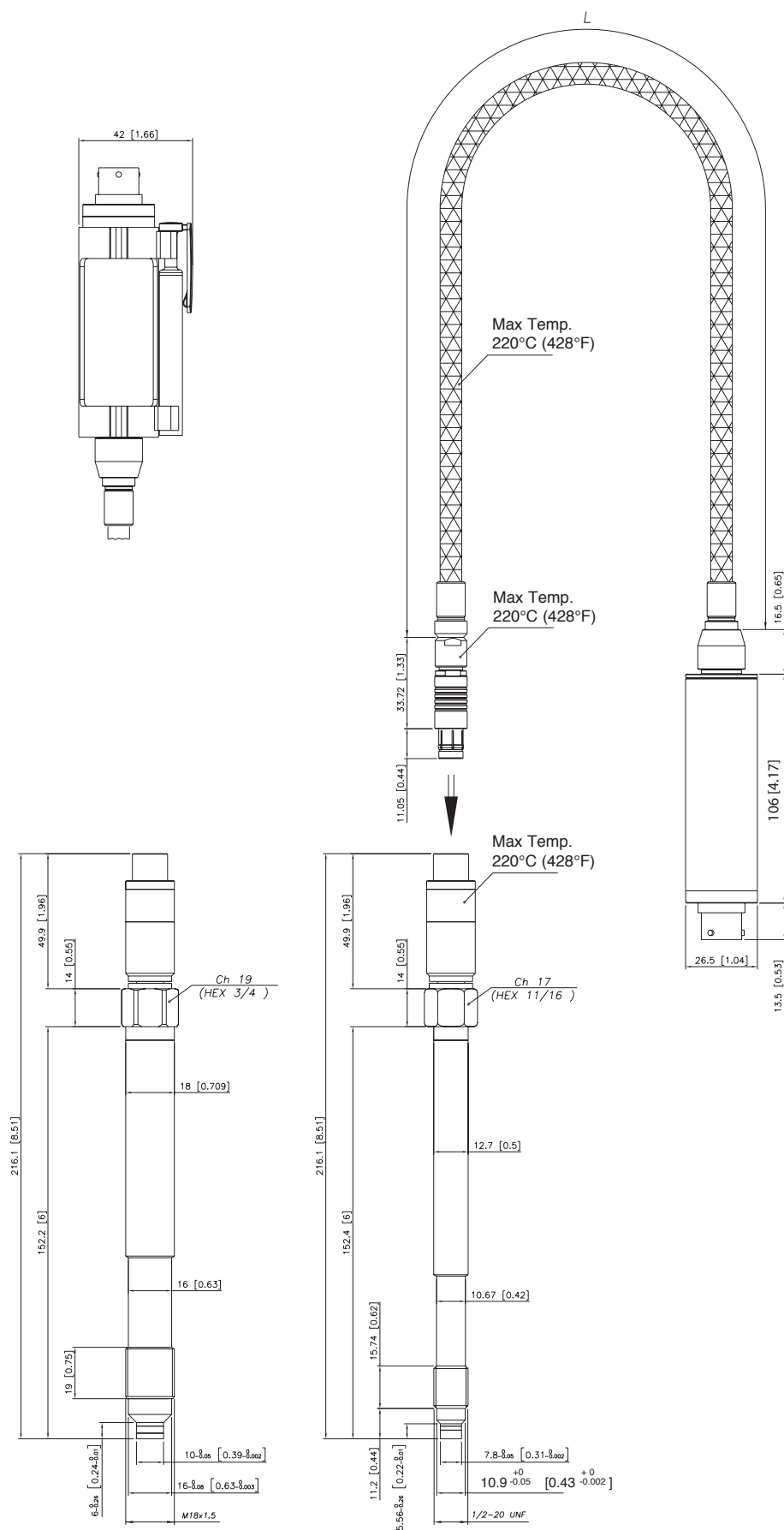


NOTE : dimensions refer to rigid stem length option “4” (153 mm – 6”)

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

MECHANICAL DIMENSIONS

IE1M



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)

IE2



SELF DIAGNOSTICS

Below the conditions detected by the sensor self-diagnostics:

- Cut cable / device non connected / broken power supply, output $<3.6\text{mA}$
- Broken primary element / pin detachment, output $>21\text{mA}$
- Pressure above 200% of the span, output $<3.6\text{mA}$
- Pressure below the -30% of the span related to the zero value, output $<3.6\text{mA}$
- Voltage monitor in case of overvoltage/undervoltage/voltage variation in the electronics, output $<3.6\text{mA}$
- Program sequence error, output $<3.6\text{mA}$
- Overtemperature on the electronics, output $<3.6\text{mA}$
- Error on the primary element output or on the first amplification stage, output $<3.6\text{mA}$

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: $24\text{Vdc} \pm 20\%$
- 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 $< 3,6\text{mA}$	OPEN
ON	output $> 21\text{mA}$	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 $<3,6\text{mA}$
- Device not connected: breakdown information as the signal is $<3,6\text{mA}$
- Broken power-supply: breakdown information as the signal is $<3,6\text{mA}$

or in case of performance problems:

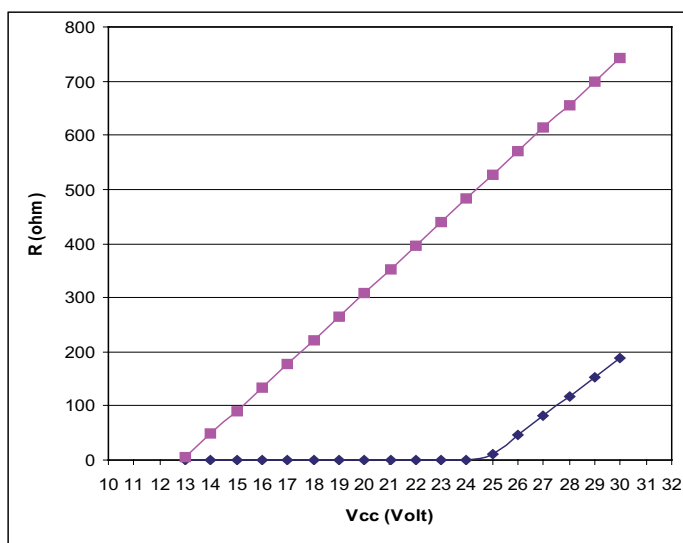
- most common failures on primary sensors: the signal goes to $>21\text{mA}$

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

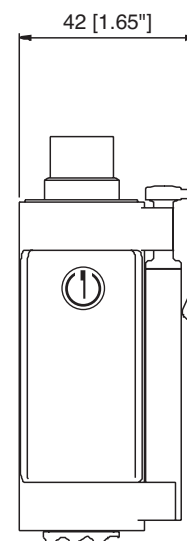
LOAD DIAGRAM



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

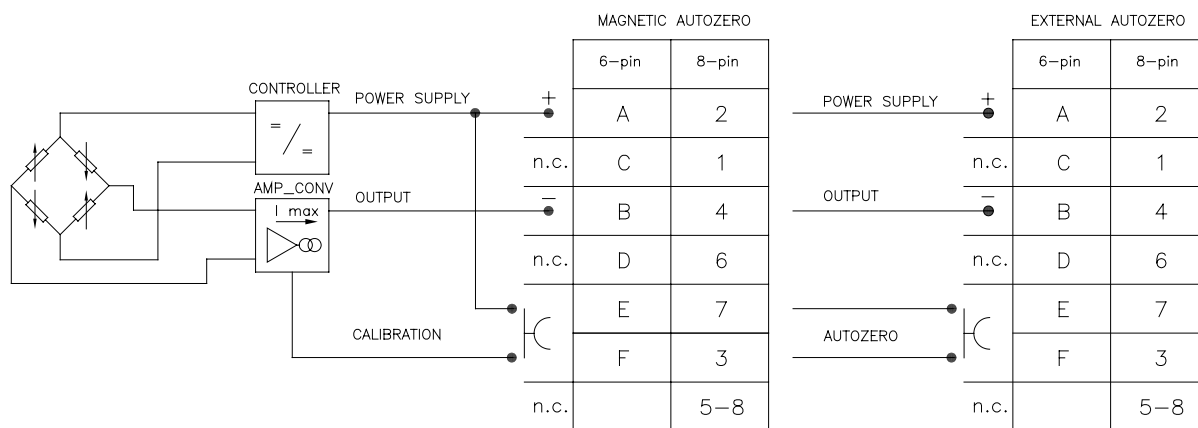


The Autozero function is activated through a magnetic contact (external magnet supplied with the sensor).

See the manual for a complete Autozero function explanation.

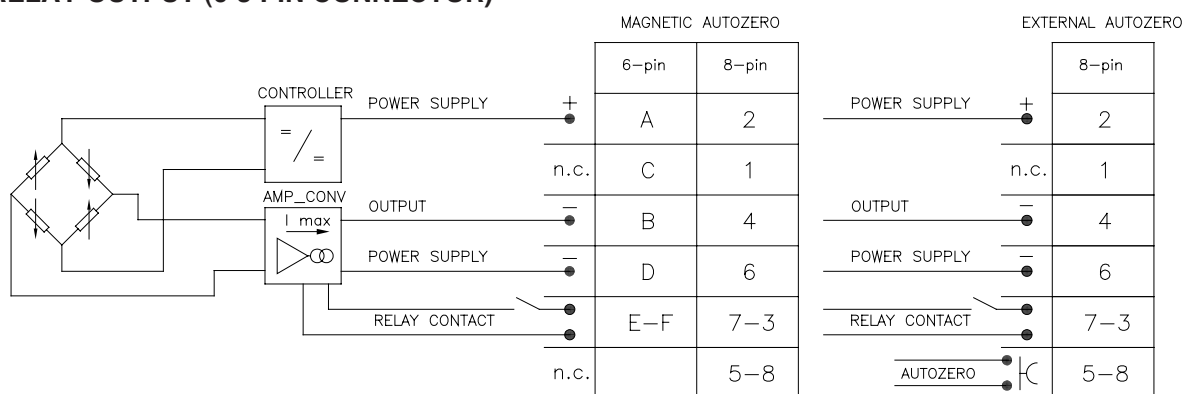
ELECTRICAL CONNECTIONS

CURRENT OUTPUT



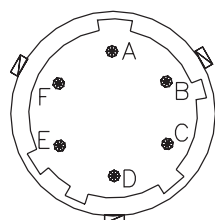
The cable shield is tied to connector via cable clamp

RELAY OUTPUT (6-8 PIN CONNECTOR)

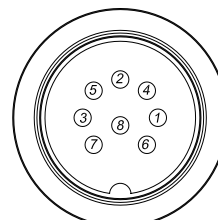


The cable shield is tied to connector via cable clamp

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



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



ACCESSORIES

Connectors

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

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

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

CON300
CON307

PCAV221
PCAV104
PCAV105
PCAV106

SF18
SC12
SC18
KF12
KF18
CT12
CT18
PKIT379
PKIT378

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

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