

Edition 01/2011

Index

1. General precautions	page 2
2. Transmitters with digital output	page 2
Standard installation	page 2
Electrical connections (series MD / WD / KD / I / IJ)	page 2
3. Transmitters with amplified analog output	page 3
Standard installation	page 3
Electrical connections (series TK / TPSA / TSA)	page 3
Electrical connections (series TPFADA / TPHADA / TPSADA / TKDA)	page 4
Electrical connections (series M / W / K / I)	page 5
4. Transducers with non-amplified analog output	page 8
Standard installation	page 8
Electrical connections (series M / W / K / I)	page 8
Electrical connections (series TPS)	page 9
Electrical connections (series TPF / TPH)	page 9
5. Protection for outdoor installations of analog sensors	page 10
6. Standard reference	page 11

1. General Precautions

The system must be used only in accordance with the required protection level.

The sensor must be protected against accidental knocks and used in accordance with the instrument's ambient characteristics and performance levels.

The sensors must be powered with non-distributed networks and always at lengths of less than 30 mt.

In case of outdoor installations, follow the instructions in paragraph 5.

2. Transmitters with digital output

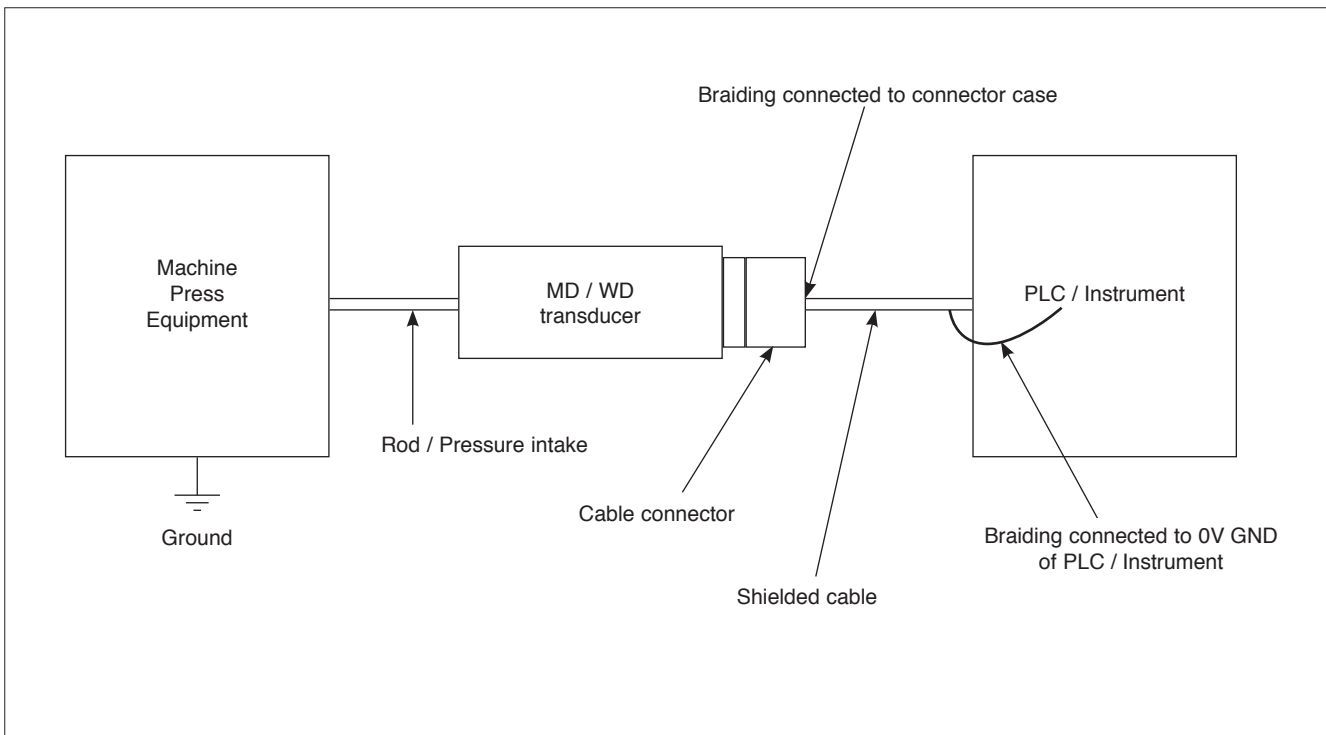
Transducers: Series MD / WD / KD / I / IJ

Outputs: CANopen DP404

Installation notes

- The transducer must be grounded (normally through the machine body or equipment it is installed on).
- Use a shielded cable only. The braiding must be connected to the case of the 5-pin connector. On instrument/PLC side, we advise you connect the braiding without power supply (0V GND).
- To prevent interference, separate the power cables from the signal cables.

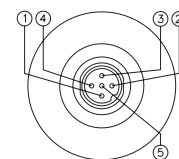
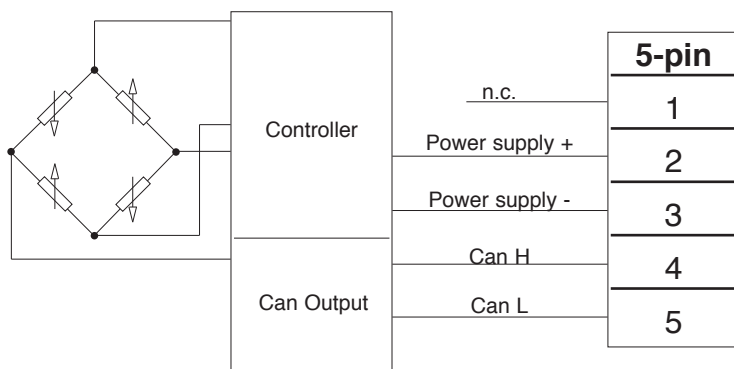
Standard installation (recommended)



Electrical connections

Series MD / WD / KD / I / IJ

CAN BUS DP404 digital output



M12 DIN EN 50044 5-pin connector

3. Transmitters with amplified analog output

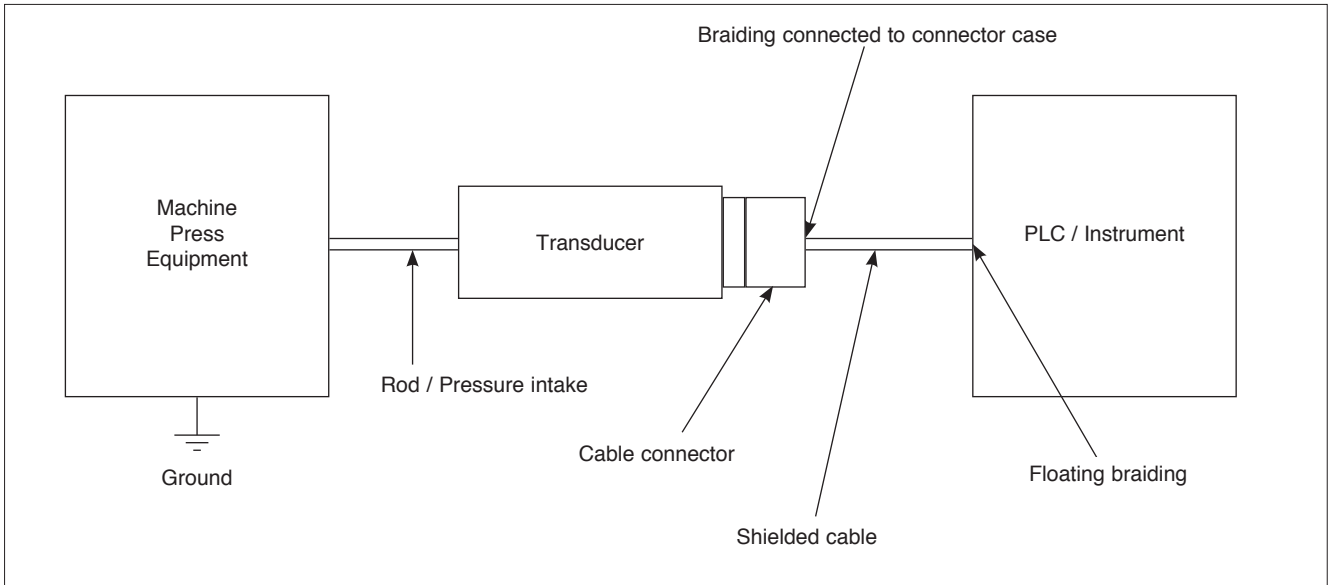
Transducers: Series M / Series K / Series I / TK / TKDA / TPSA / TPSADA / TSA / TPFADA / TPHADA

Outputs: 0...10V, 0...5V, 0,1...10,1V, 1V, 0,1...5V, 1V, 4...20mA, ecc...
mV/V

Installation notes

- The transducer must be grounded (normally through the machine body or equipment it is installed on).
- Use a shielded cable only. The braiding must be connected to the connector case. The braiding on instrument / PLC side must be left floating.
- To prevent interference, separate the power cables from the signal cables

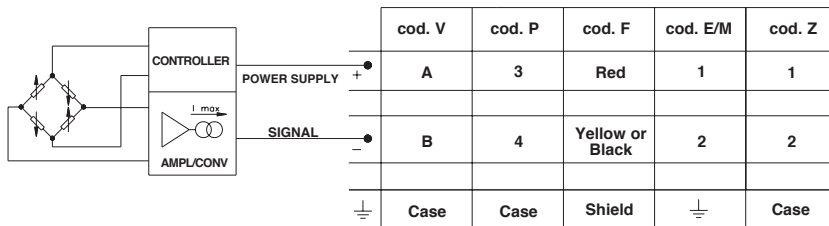
Standard installation (recommended)



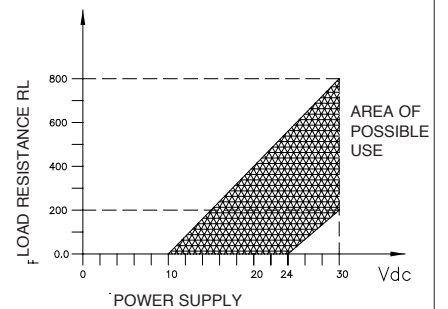
Electrical connections

Series TK / TPSA / TSA

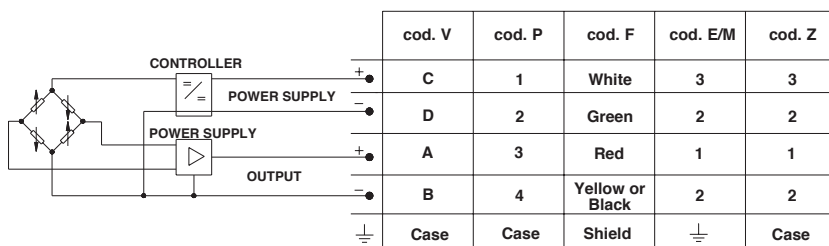
Current amplified output (mod. E)



LOAD DIAGRAM (Current output)

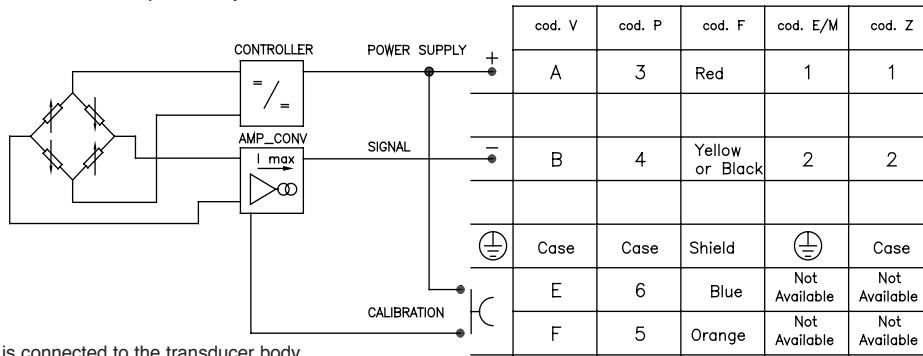


Voltage amplified output (mod. B/C/M/N/P/Q/R)



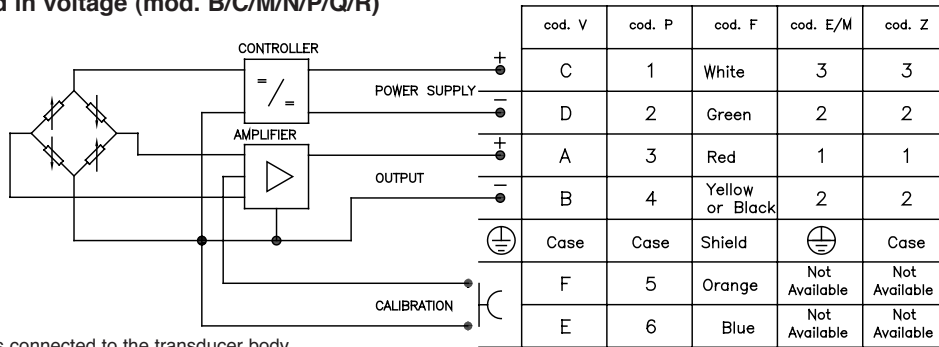
Series TPFADA / TPSADA / TKDA / TPHADA

Output amplified in current (mod. E)



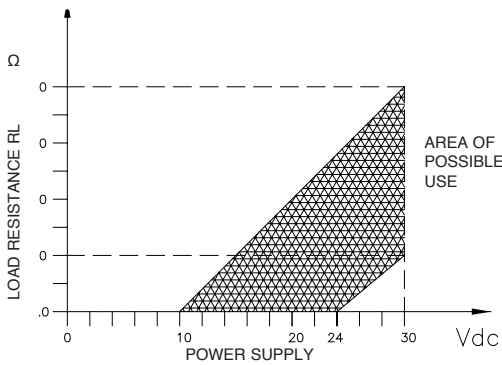
The cable sheathing is connected to the transducer body

Output amplified in voltage (mod. B/C/M/N/P/Q/R)



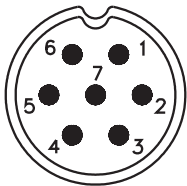
The cable sheathing is connected to the transducer body

LOAD DIAGRAM (Current output)



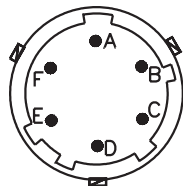
Note: The "Digital Autospan" function is activated by means of the "Calibration" contacts shown in the above diagram. For operation and complete functions, see the user manual (downloadable on www.gefran.com).

P - 7 pole connector



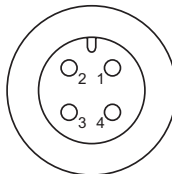
Male connector
09-0127-09-07
Protection IP67

V - 6 pole connector



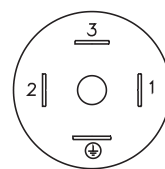
Male connector
VPT02A10-6PT2
Protection IP66

Z - 4 pole male connector M12 x 1



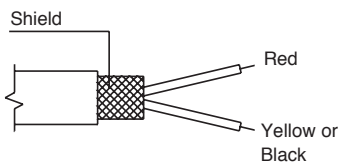
4 pin Male connector
serie 713
Protection IP67

E - EN 175301-803 Type A
M - EN 175301-803 Type C-ind



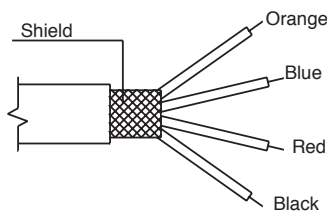
4 Pin DIN Type A
Protection IP65
4 Pin MicroDIN Tipo C-industrial
Protection IP65

F - 2 pole cable



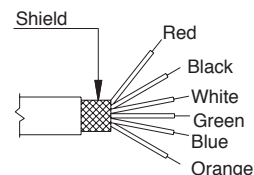
Shielded cable 2x0,25 - 2m. (output E)
Protection IP65

F - 4 pole cable



Shielded cable 4x0,25 - 1m. (output E)
Protection IP65

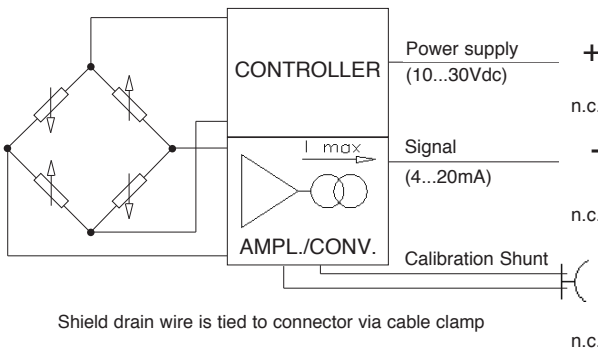
F - 6 pole cable



Shielded cable 6x0,25 - 1m
Protection IP65

Series M / W / K

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



MAGNETIC AUTOZERO

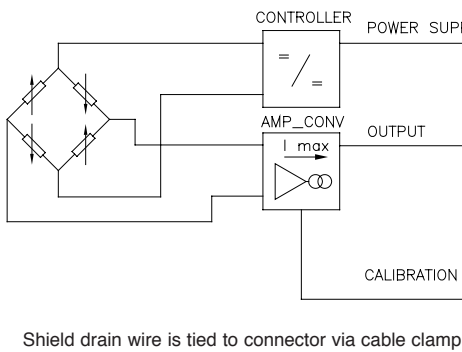
	6-pin	8-pin
Power supply +	A	B
n.c.	C	A
Signal -	B	D
n.c.	D	C
Calibration Shunt	E - F	E - F
n.c.		G - H

EXTERNAL AUTOZERO

	6-pin	8-pin
Power supply +	A	B
n.c.	C	A
Signal -	B	D
n.c.	D	C
Autozero	E - F	E - F
n.c.		G - H

Series I

CURRENT OUTPUT



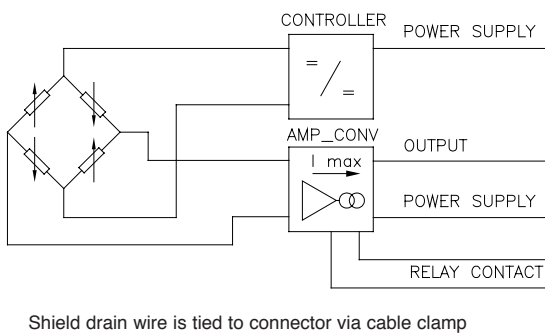
MAGNETIC AUTOZERO

	6-pin	8-pin
POWER SUPPLY +	A	2
n.c.	C	1
OUTPUT -	B	4
n.c.	D	6
CALIBRATION	E	7
	F	3
n.c.		5-8

EXTERNAL AUTOZERO

	6-pin	8-pin
POWER SUPPLY +	A	2
n.c.	C	1
OUTPUT -	B	4
n.c.	D	6
AUTOZERO	E	7
	F	3
n.c.		5-8

RELAY OUTPUT (6-8 pin connector)

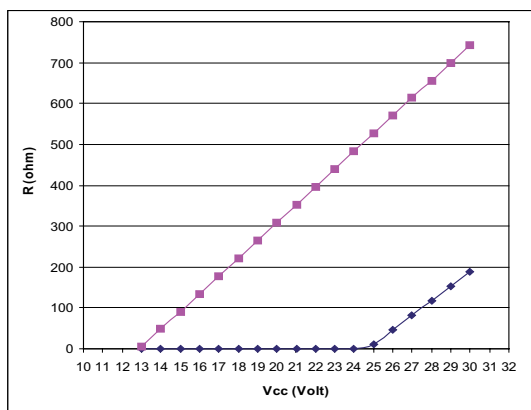


MAGNETIC AUTOZERO

	6-pin	8-pin
POWER SUPPLY +	A	2
n.c.	C	1
OUTPUT -	B	4
POWER SUPPLY -	D	6
RELAY CONTACT	E-F	7-3
n.c.		5-8

EXTERNAL AUTOZERO

	8-pin
POWER SUPPLY +	2
n.c.	1
OUTPUT -	4
POWER SUPPLY -	6
RELAY CONTACT	7-3
	5-8



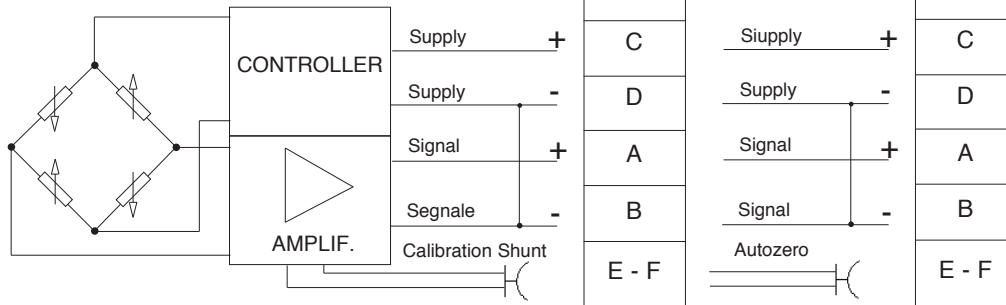
LOAD DIAGRAM

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.

Series **M - W - K**

VOLTAGE OUTPUT (M, N, B, C)

Supply 15..30Vdc

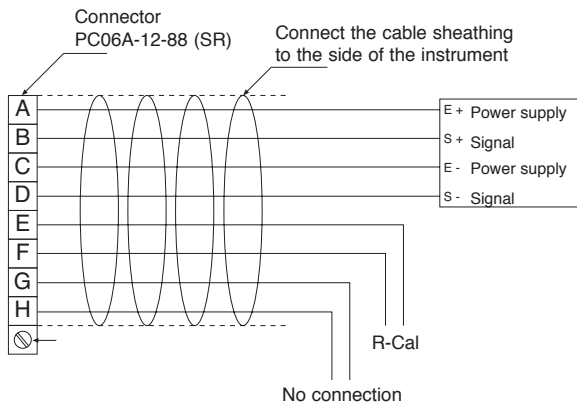


VOLTAGE OUTPUT (H, L)

Power supply -15..+15Vdc (*)

(*) The Pin B of the connector must be connected to the common of the $\pm 15Vdc$ supply

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

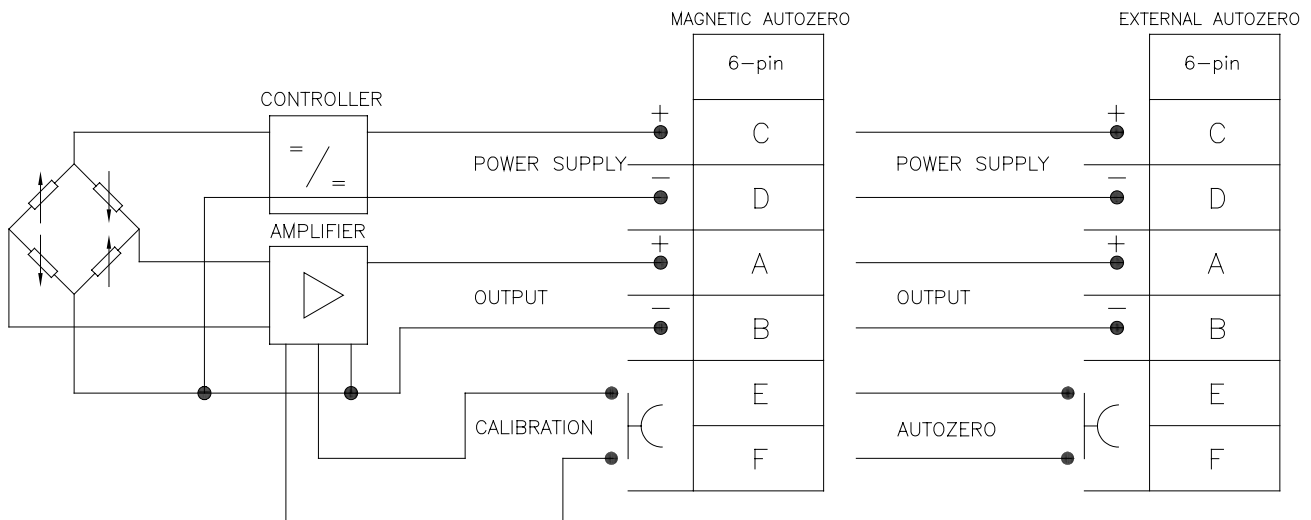
External Autozero version

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

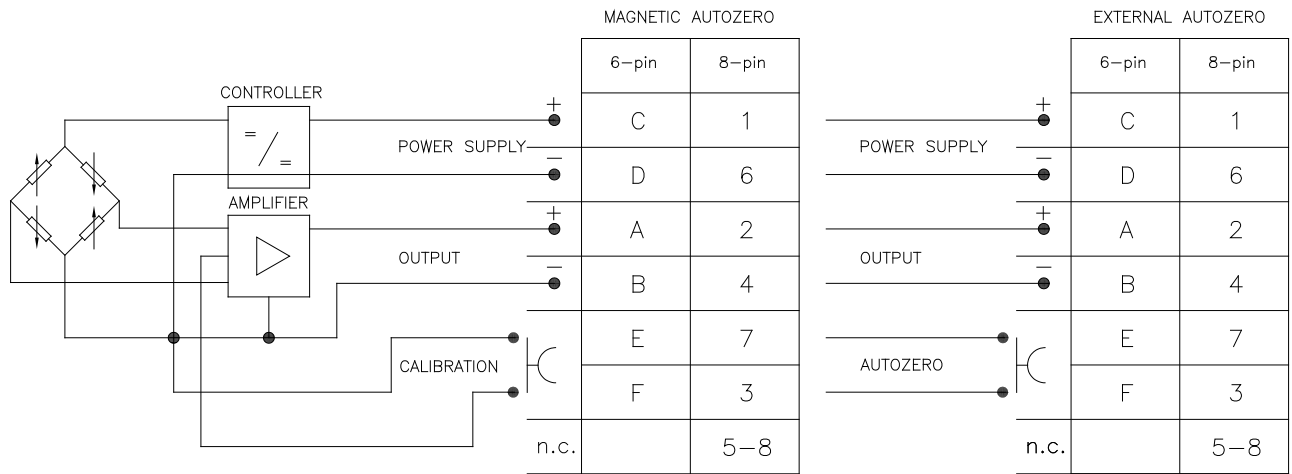
Series **I**

VOLTAGE OUTPUT (M, N, B, C)

Supply 15..30Vdc

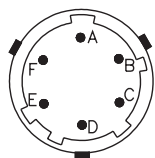
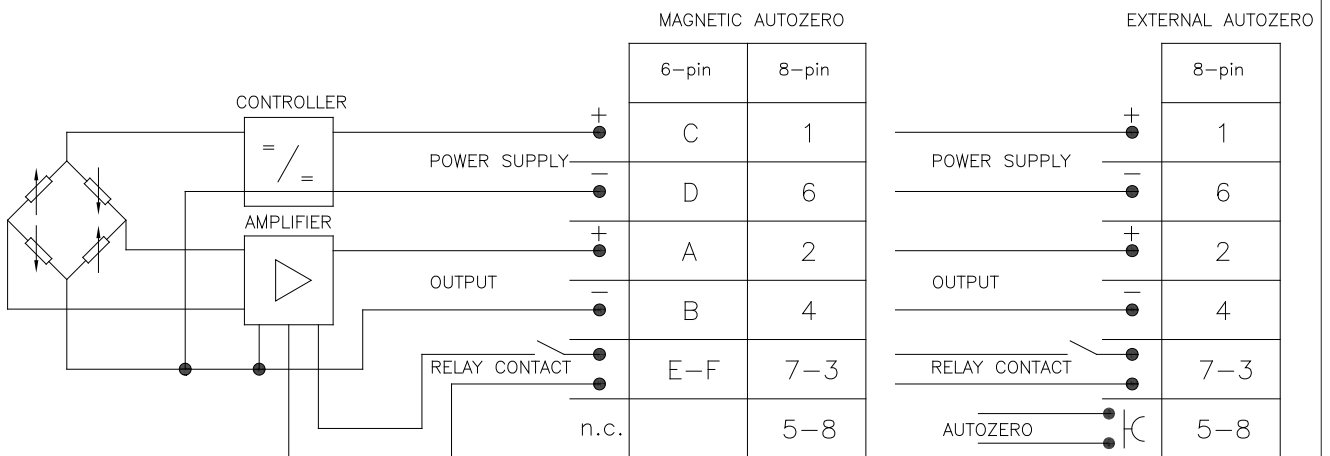


VOLTAGE OUTPUT

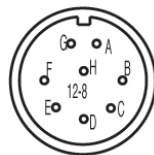


Shield drain wire is tied to connector via cable clamp

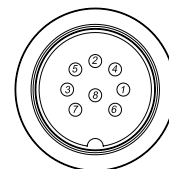
RELAY OUTPUT (6-8 pin connector)



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



8-pin connector
PC02E-12-8P Bendix



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

4. Transducers with non-amplified analog output

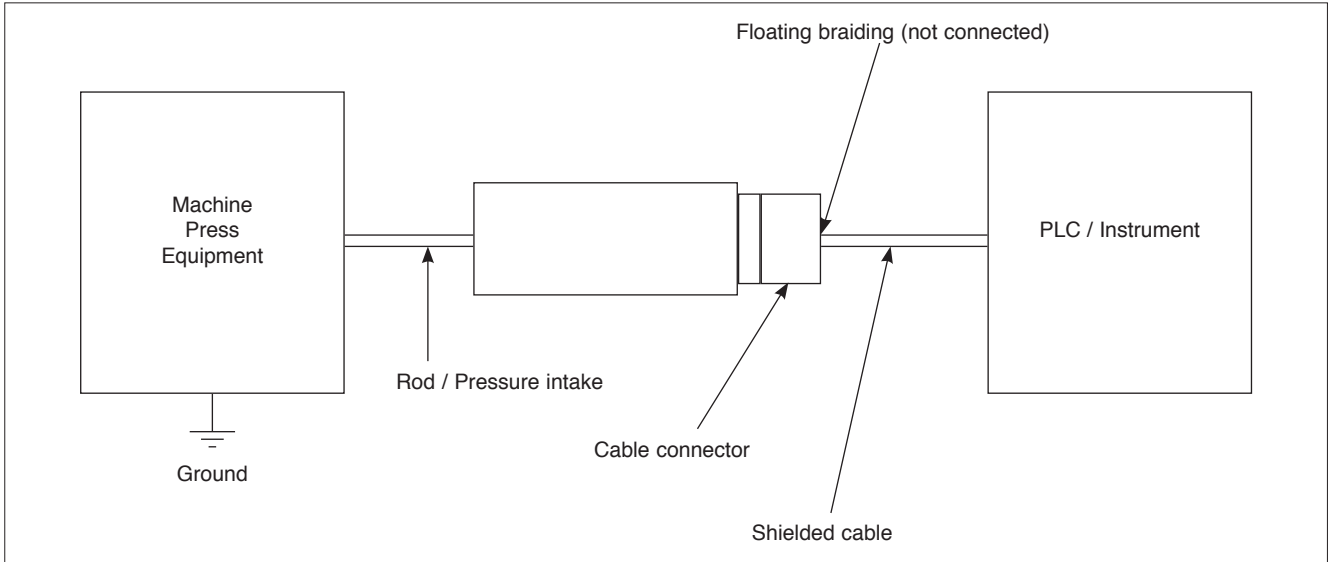
Transducers: Series M / Series W / Series K / Series I / TPS / TPF / TPH

Output: mV/V

Installation notes

- The transducer must be grounded (normally through the machine body or equipment it is installed on).
- Use a shielded cable only. The braiding on connector side must be left floating. The braiding on instrument / PLC side must be connected to the power supply GND.
- To prevent interference, separate the power cables from the signal cables

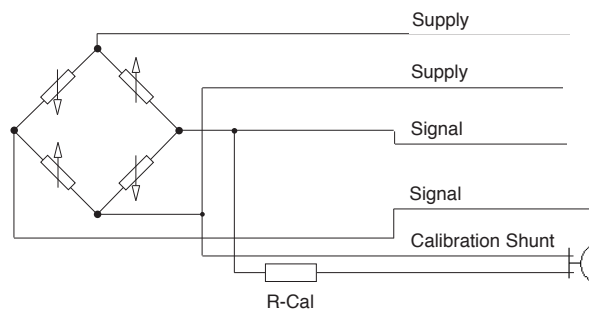
Standard installation (recommended)



Electrical connections

Series M / W / K

mV/V OUTPUT

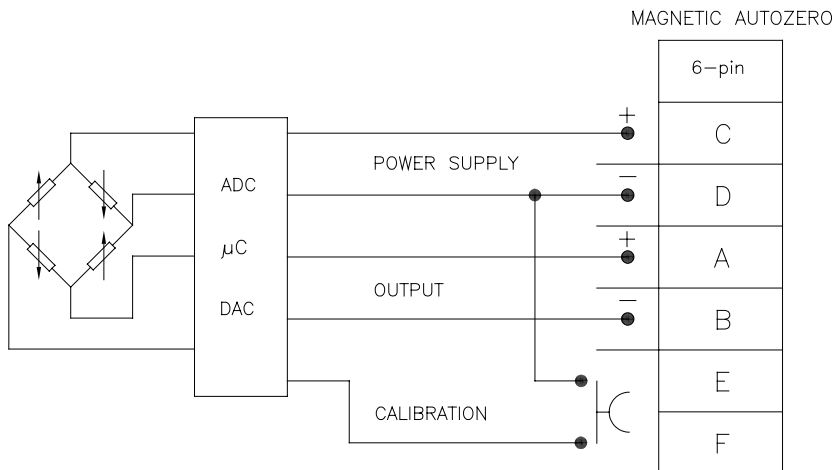


	6-pin	8-pin
Supply +	C	A
Supply -	D	C
Signal -	B	D
Signal +	A	B
Calibration Shunt	E - F	E - F
n.c.		G - H

Shield drain wire is tied to connector via cable clamp

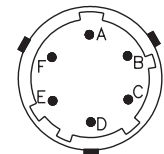
Series I

mV/V OUTPUT

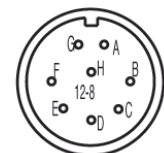


MAGNETIC AUTOZERO

	6-pin
POWER SUPPLY +	C
POWER SUPPLY -	D
OUTPUT +	A
OUTPUT -	B
CALIBRATION	E
	F

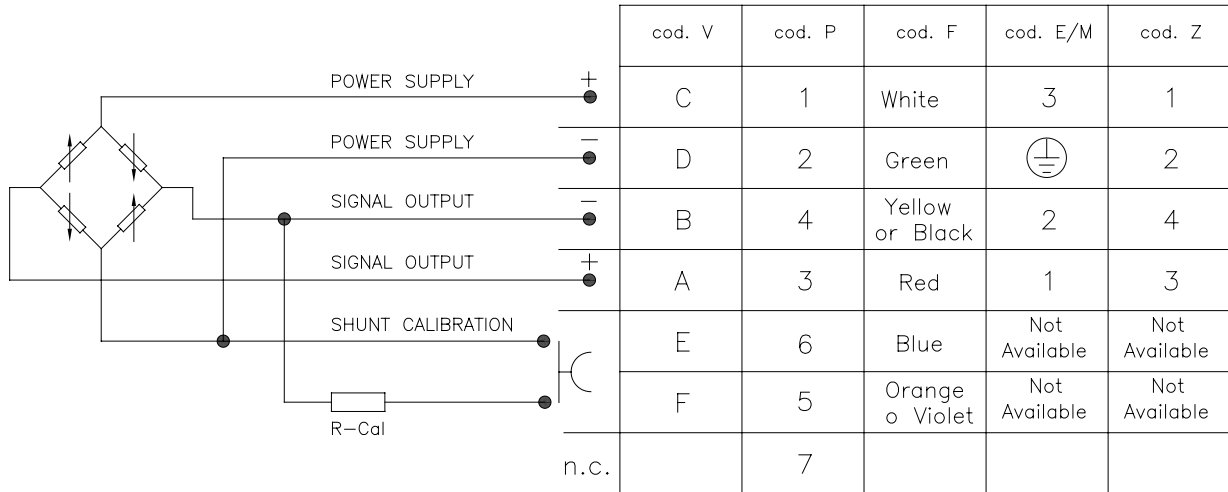


6-pin connector VPT07RA10-6PT2 (PT02A-10-6P)

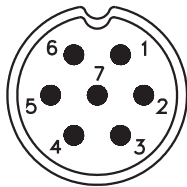


8-pin connector PC02E-12-8P Bendix

mV/V output

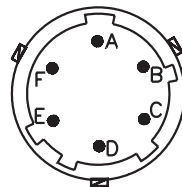


P - 7 pole connector



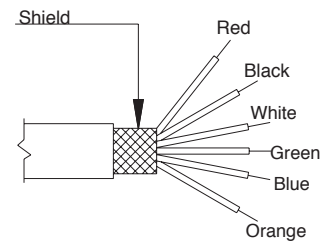
Male connector
09-0127-09-07
Protection IP67

V - 6 pole connector



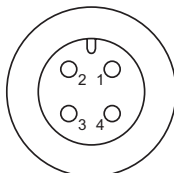
Male connector
VPT02A10-6PT2
Protection IP66

F - 6 pole cable



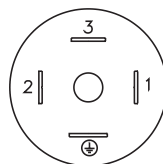
Shielded cable 6x0,25 - 1m
Protection IP65

Z - 4 pole male connector M12 x 1



4 pin Male connector
serie 713
Protection IP67

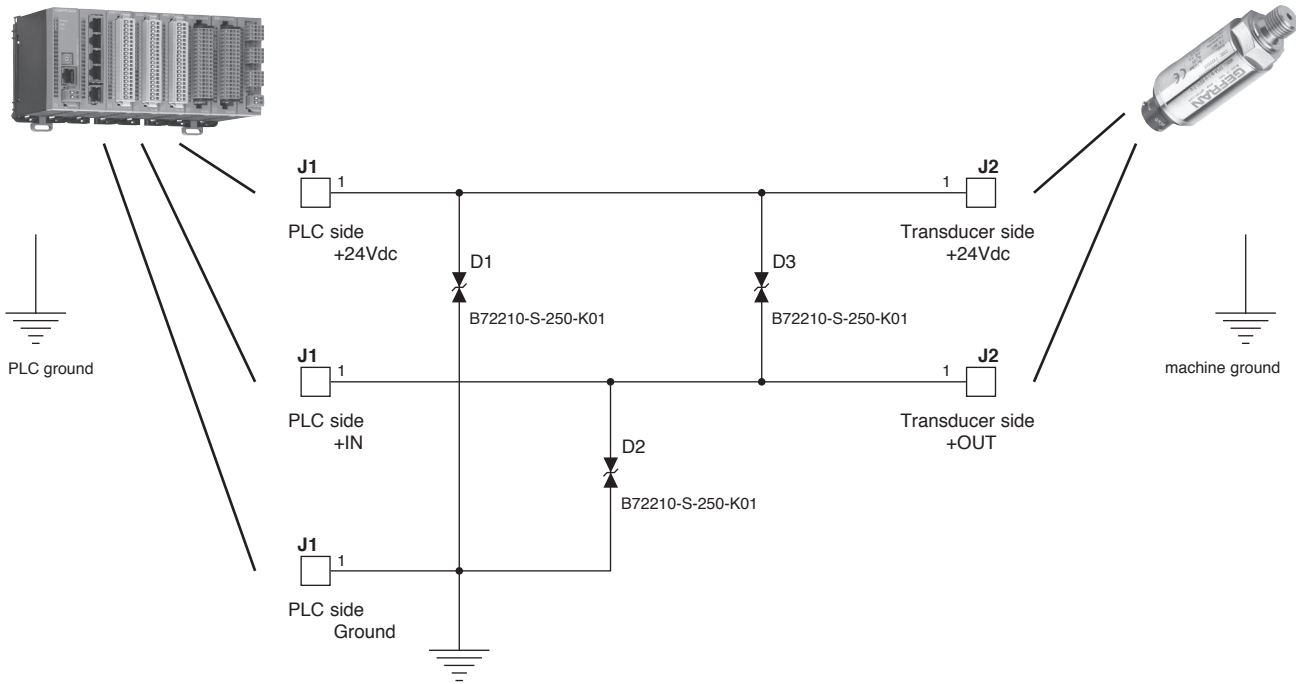
E - EN 175301-803 Type A
M - EN 175301-803 Type C-ind



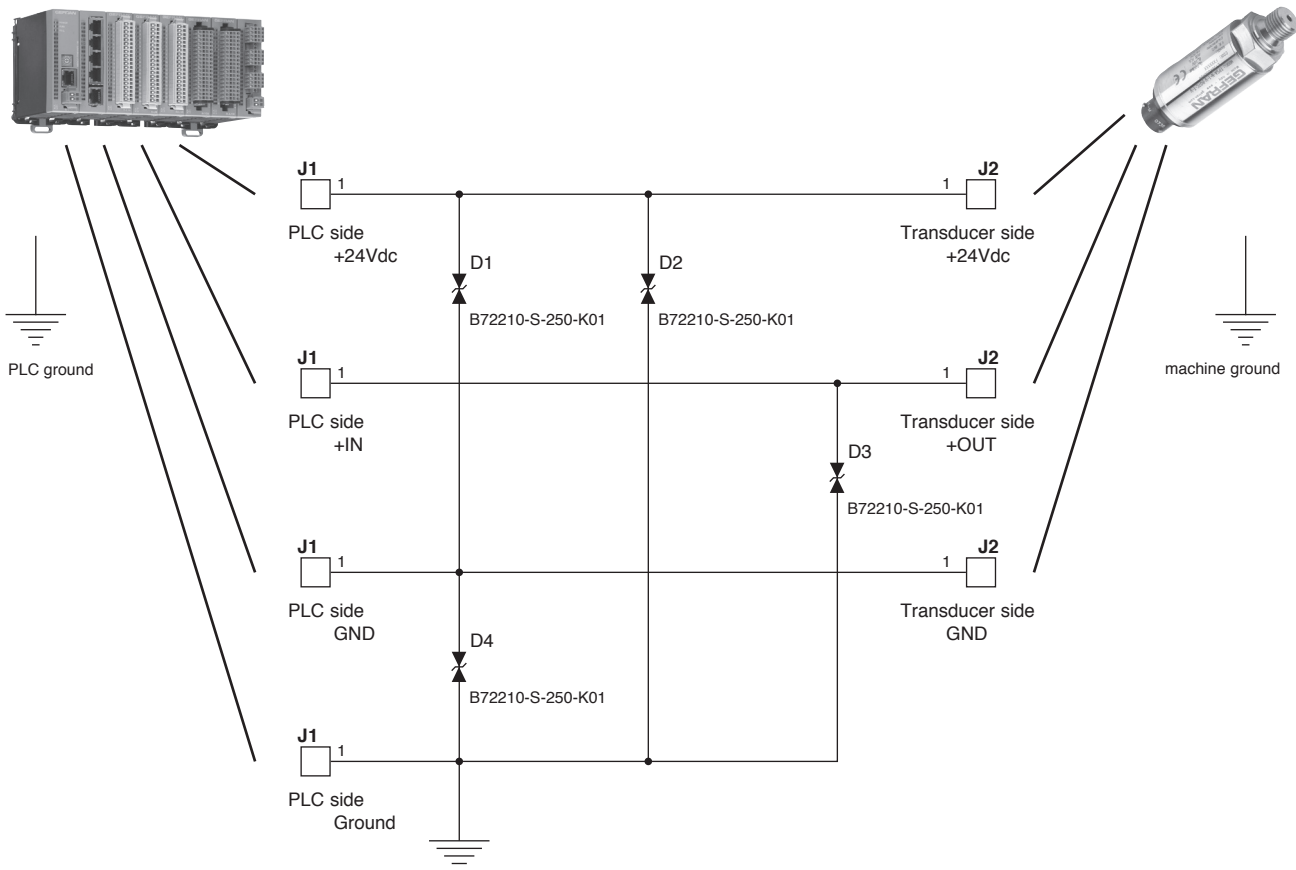
4 Pin DIN Type A
Protection IP65
4 Pin MicroDIN Tipo C-industrial
Protection IP65

5. Protection for outdoor installations of analog sensors

Pressure / Analog Melt current output CAL signals if any do not require protection



Pressure / Analog Melt voltage output CAL signals if any do not require protection



6. Standard reference

Gefran products, described in this manual, are compliant to the European Directive 2004/108/CE.

They are tested according to the standard EN 61326-1 "Electrical equipment for measurement, control and laboratory use - EMC requirements", Part 1 "general requirements and EN 61326-2-3 "Electrical equipment for measurement, control and laboratory use - EMC requirements", Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning.

Electromagnetic Compatibility (EMC) requirements are classified in two types: Emission requirements, Immunity requirements

Emission requirements

For class B equipment the limits, the measuring methods and the provisions given in CISPR11, EN 61000-3-2 and EN 61000-3-3 apply. Equipment classification and choice of respective limits shall be determined after taking into account the intended environment and emission requirement in the areas of use

Immunity requirements

The immunity test requirements are given in table 1.

The tests shall be conducted in accordance with the basic standards. The tests shall be carried out one at a time.

Table 1 - Immunity test requirements for equipment intended for use in industrial locations

Port	Phenomenon	Basic standard	Test value	Performance criteria requested	Performance criteria applied by Gefran
Enclosure	Electrostatic discharge (ESD)	EN 61000-4-2	4 kV / 8 kV contact/air	B	A
	EM field	EN 61000-4-3	10 V/m (80 MHz to 1 GHz) 3 V/m (1,4 GHz to 2 GHz) 1 V/m (2,0 GHz to 2,7 GHz)	A	A
	Rated power frequency magnetic field	EN 61000-4-8	30 A/m	A	A (@ 400 A/m)
Power supply DC ^{a)}	Burst	EN 61000-4-4	2 kV (5/50 ns, 5 kHz)	B	A
	Surge	EN 61000-4-5	1 kV ^{a)} / 2 kV ^{b)}	B	B
	Conducted RF	EN 61000-4-6	3 V (150 kHz to 80 MHz)	A	A (@ 10V)
I/O signal/control (including functional earth lines)	Burst	EN 61000-4-4	1 kV (5/50 ns, 5 kHz) ^{d)}	B	A
	Surge	EN 61000-4-5	1 kV ^{b), c)}	B	B
	Conducted RF	EN 61000-4-6	3 V (10 kHz to 80 MHz)	A	A (@ 10V)

^{a)} Line to line

^{b)} Line to ground

^{c)} Only in the case of long-distance lines

^{d)} Only in the case of lines > 3 m

^{e)} DC connections between parts of equipment/system which are not connected to a d.c. distribution network are treated as I/O signal/control ports

Performance criterion A

During testing, normal performance within the specification limits.

Example

If electronic equipment is required to work with high reliability, the EUT shall operate without any apparent degradation from the manufacturer's specification.

Performance criterion B

During testing, temporary degradation, or loss of function or performance which is selfrecovering.

Example

During testing, an analogue function value may deviate. After the test, the deviation vanishes.

Performance criterion C

During testing, temporary degradation, or loss of function or performance which requires operator intervention or system reset occurs.

Example

In the case of an interruption in the mains longer than the specified buffer time, the power supply unit of the equipment is switched off. The switch-on may be automatic or carried out by the operator.

Copy of the conformity declaration is available for download on the Gefran web site www.gefran.com

Gefran Pressure Probes: Electrical Installation



Tel: +27 11 966 9800 (JHB)
+27 21 762 8995 (CT)
sales@thermon.co.za
www.unitemp.com/contact