



Main features

- Pressure range:
0...1500 to 0...5000 bar / 0...20000 to 0...70000 psi
- Precision class: 0,3% FSO
- Entirely in stainless steel
- Internally generated calibration signal
- "Autoclave" pressure fitting
- Protection level: IP65

Series TPHA transmitters are designed for applications in high-pressure hydraulic circuits.

It uses the extensimetric measurement principle with photoengraved metal leaf.

The 4 active elements configuration allows significant signals, with conditions of stress with high coefficient of safety on the measurement diaphragm.

Careful selection and ultrasonic checking of materials used guarantee the absence of inclusions and defects on the primary reaction mechanics, assuring a highly reliable product.

The resonance frequency of the measurement diaphragm varies from 18 to 80KHz based on the Full Scale.

The selection of highly stable electronic components and the availability of output signals in voltage and current make series TPHA transmitters suitable for applications in which the signal has to be transmitted over long distances or in smart control and checking systems.

TECHNICAL DATA

	Output signal	
	VOLTAGE B/C/M/N/P/Q/R	CURRENT E
Precision class (1)	< 0,3% FSO	
Resolution	Infinite	
Pressure range	from 0...1500 to 0...5000 bar / from 0...20000 to 0...750000 psi	
Max. applicable pressure (without degradation of the specific)	2 times Full Scale (max. 6000 bar / 86000psi)	
Resistance to bursting	3 times Full Scale (max. 6000 bar / 86000psi)	
Measurement principle	Metal strain gauge glued (4 active elements)	
Power supply	15/30Vdc	10/30Vdc
Max. absorption on power supply (2)	40mA	20mA
Resistance of isolation at 50Vdc	> 1000MΩ	
Nominal pressure signal: ± 0,5% FS	B 5,1Vdc M/P 5Vdc R 6Vdc	C 10,1Vdc Q/R 10Vdc 20mA
Ambient pressure signal: ± 0,5% FS	B/C 0,1Vdc P/Q/R 1Vdc	M/N 0Vdc 4mA
Calibration signal	80% ± 1%FSO	
Nominal pressure signal control	± 5% FSO	
Ambient pressure signal control	± 5% FSO	
Max. permitted load	1mA	diagr.
Max. response time (0...90% FSO) L V	4ms 1ms	8ms 4ms
Noise at output (RMS 10-400Hz)	< 0,05% FSO	
Output short circuit protection and reverse power polarity	YES	
Output pulse overvoltage protection	YES	
Compensated temperature range	0...70°C / 32...158°F	
Permitted temperature range	-30...85°C / -22...185°F	
Thermal drift in compensated range (zero - span - sens.)	< ±0,02%FSO/°C / < ±0,01%FSO/°F	
Materials in contact with measurement fluid	15-5 PH stainless steel	
Outer case material	AISI 304 stainless steel	
Protection level	IP65	
Process connections	Standard: F-250-C (9/16-UNF female); on request: M16x1.5 female	
Electrical connections	6-pole connector; other connectors on request	

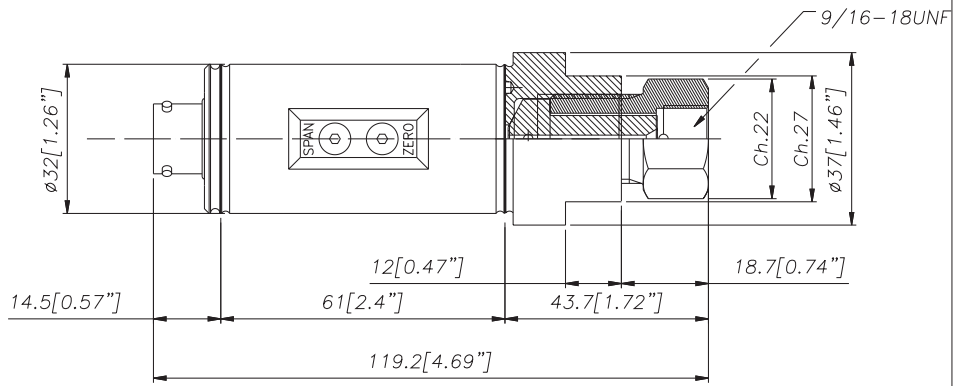
FSO = Full Scale Output

1 BFSL (Best Fit Straight Line) method

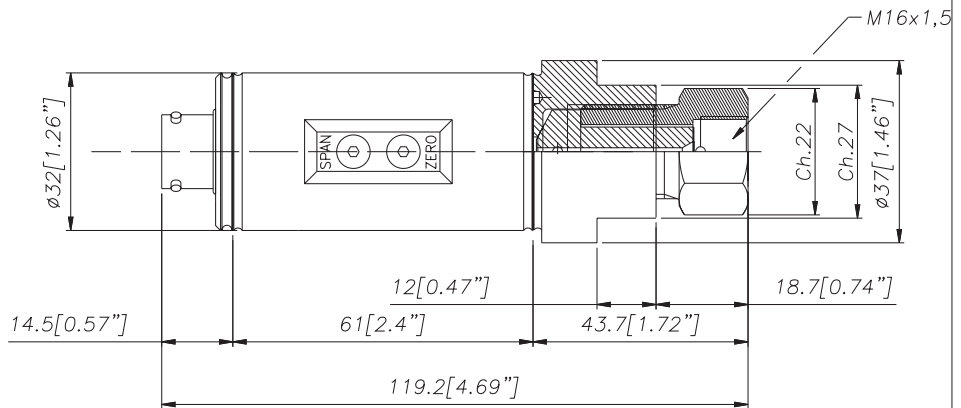
2 with 30 V power supply, max. load and calibration signal on.

MECHANICAL DIMENSIONS - Process Connections

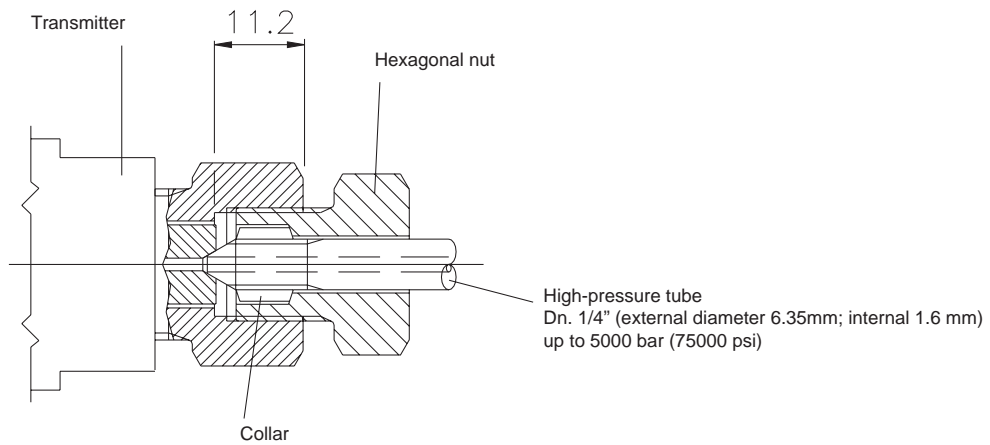
Connection
F-250-C
 (9/16-18UNF female)
 (code **D**)



Connection
M16 x 1.5 female
 (code **E**)

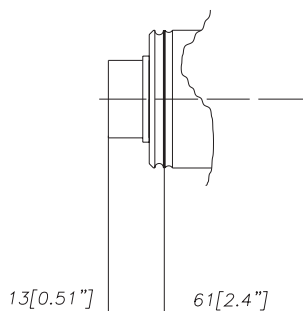


MECHANICAL DIMENSIONS - Notes on use

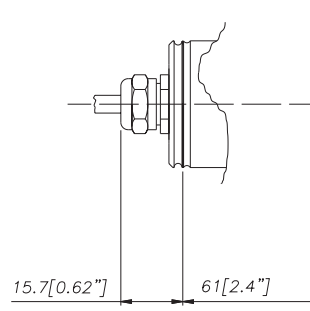


MECHANICAL DIMENSIONS - Connectors

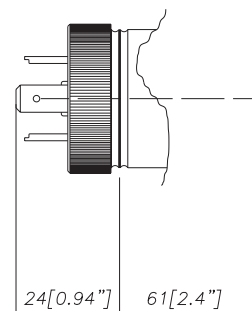
P - 7-pole connector



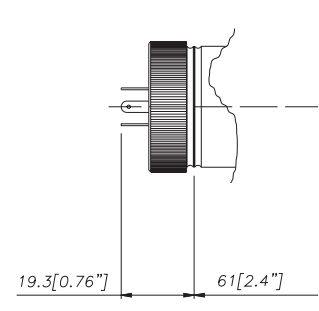
F - 4-6 pole cable



E - 4-pole connector solenoid

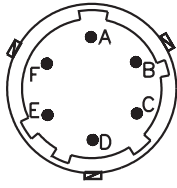


M - 4-pole connector microsolenoid



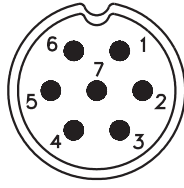
ELECTRICAL CONNECTIONS - Connectors

V - 6-pole connector



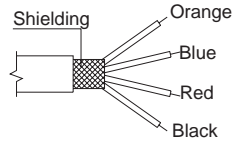
Male conn.
VPT02A10-6PT2

P - 7-pole connector

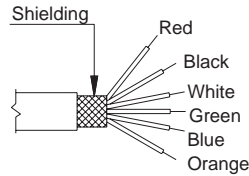


Male conn.
09-0127-09-07

F - 4-6-pole cable

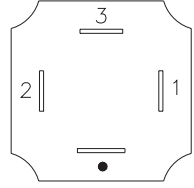


F - Shielded cable 4 x 0,25 - 1 m
(for output code E)



F - Shielded cable 6 x 0,25 - 1 m.

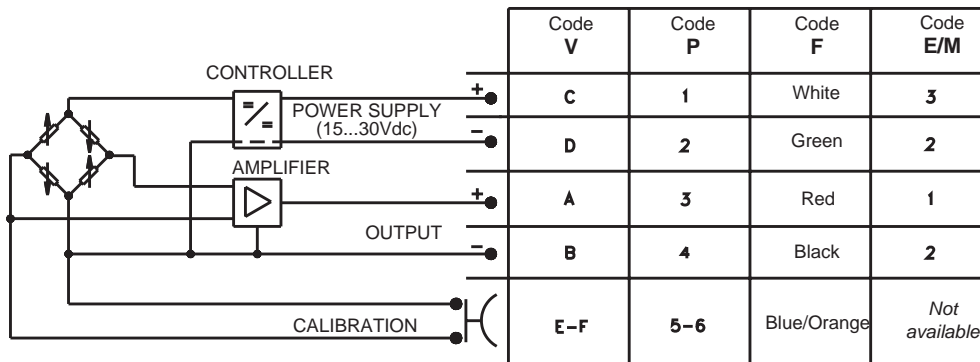
E - 4-pole connector solenoid
M - 4-pole connector microsolenoid



E - Solenoid 400DIN
46350A-ISO 4400
M - Microsolenoid 400 DIN
46350B-ISO 4400

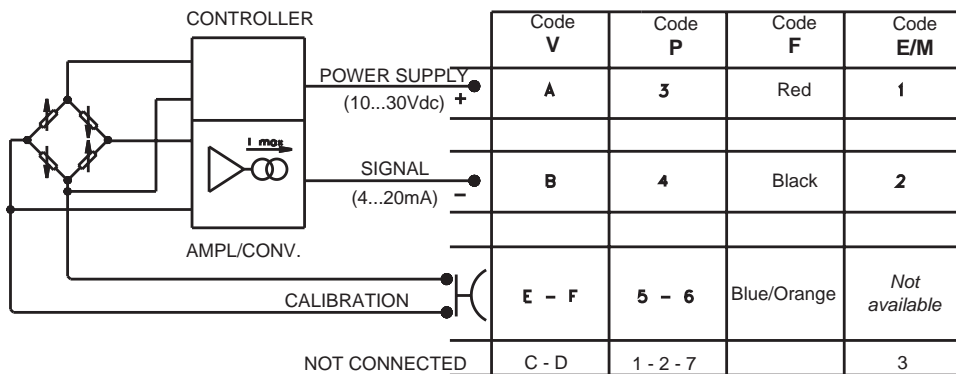
ELECTRICAL CONNECTIONS - connection diagrams

OUTPUT AMPLIFIED IN VOLTAGE - mod. B/C/M/N/P/Q/R



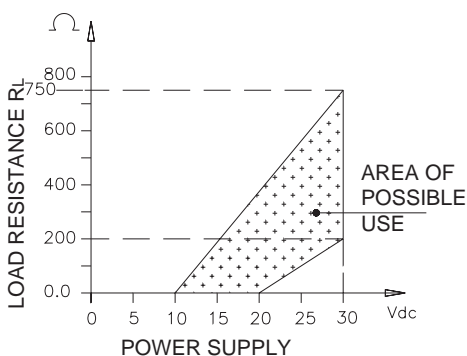
The cable sheathing is connected to the transducer body.

OUTPUT AMPLIFIED IN CURRENT - mod. E

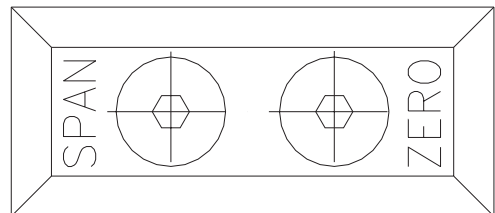


The cable sheathing is connected to the transducer body.

LOAD DIAGRAM (current output)



SETTINGS



The signal can be set to room pressure (ZERO) and to rated pressure (SPAN) by means of their trimmers, accessed inside the transmitter after removal of the two fixing screws.

SPAN is set during production and must not be changed.

ACCESSORIES ON REQUEST

Connectors	
Connection V Female cable connector Prot. IP66	CON 300
Connection P Female cable connector Prot. IP40	CON 320
Female cable connector 90° Prot. IP40	CON 322
Female cable connector Prot. IP67	CON 321
Connection E Connector 3 poles + ground DIN43650A ISO4400 Prot. IP65	CON 006
Connection M Connector 3 poles + ground DIN43650B ISO4400 Prot. IP65	CON 008

EXTENSION CABLES

6-pin connector with 8m (25 ft) cable	C08WLS	<table border="1"> <thead> <tr> <th colspan="2">Cable color code</th> </tr> <tr> <th>Conn.</th> <th>Wire</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Red</td> </tr> <tr> <td>B</td> <td>Black</td> </tr> <tr> <td>C</td> <td>White</td> </tr> <tr> <td>D</td> <td>Green</td> </tr> <tr> <td>E</td> <td>Blue</td> </tr> <tr> <td>F</td> <td>Orange</td> </tr> </tbody> </table>	Cable color code		Conn.	Wire	A	Red	B	Black	C	White	D	Green	E	Blue	F	Orange
Cable color code																		
Conn.	Wire																	
A	Red																	
B	Black																	
C	White																	
D	Green																	
E	Blue																	
F	Orange																	
6-pin connector with 15m (50 ft) cable	C15WLS																	
6-pin connector with 25m (75 ft) cable	C25WLS																	
6-pin connector with 30m (100 ft) cable	C30WLS																	
Other lengths	on request																	

ORDER CODE

Pressure transmitter **TPHA**

OUTPUT SIGNAL	
Standard	
0.1 .. 10.1 Vdc	C
4 .. 20 mA	E
0 .. 10 Vdc	N
On request	
0.1 .. 5.1 Vdc	B
0 .. 5 Vdc	M
1 .. 5 Vdc	P
1 .. 10 Vdc	Q
1 .. 6 Vdc	R
1 .. 11 Vdc (Supply 18..30)	S

Mechanical and/or electrical characteristics differing from standard may be arranged on request.

RESPONSE TIME	
L	Standard
V	Fast

PRESSURE RANGE			
	bar		psi
B01M	0..1000	P15M	0..15000
B15C	0..1500	P20M	0..20000
B02M	0..2000	P30M	0..30000
B35C	0..3500	P50M	0..50000
B05M	0..5000	P70M	0..70000

PROCESS CONNECTIONS	
Standard	
F-250-C (9/16-18UNF female)	D
On request	
M16x1.5	E

ELECTRICAL CONNECTIONS	
Standard	
6-pole connector	V
On request	
7-pole connector	P
4/6-pole shielded cable	F
4-pole connector solenoid	E
4-pole connector microsolenoid	M

Ex.: **TPHA - E - D - V - B02M - L**
Transmitter: output signal 4...20mA (two wires), autoclave pressure fitting 9/16-18UNF female, 6-pole connector, pressure range 0...2000 bar.

Ex.: **TPHA - N - D - V - B02M - V**
Transmitter: output signal 0...10Vdc, autoclave pressure fitting 9/16-18UNF female, 6-pole connector, pressure range 0...2000 bar, fast output (1 msec)

Sensors are manufactured in compliance with:
- EMC 2004/108/CE compatibility directive
- RoHS 2002/95/CE directive

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

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

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