GEFRAN

TPFADA

FLUSH DIAPHRAGM PRESSURE TRANSMITTER WITH DIGITAL AUTOZERO & SPAN

Main features

- *Ranges: from 0...10 to 0...1000 bar*
- *Output signal 4...20mA 2-wires / 0.1...5.1Vdc / 0.1...10.1Vdc / 0...5Vdc / 0...10Vdc / 1...5Vdc / 1...6Vdc / 1...10Vdc*
- *Protection rating: IP65/IP67*
- *Wetted parts: 17-4PH Stainless Steel*
- *Flush fitting stainless steel measuring diaphragm*
- *Digital Autozero & Span function*

TPFADA Series flush diaphragm pressure transmitters are based on bonded strain gauge on stainless steel technology.
Thanks to the strong flush diaphragm made with 17-4 PH stainless steel, TPFADA is particularly suitable for pressure measurement where the media is with high viscosity (thick fluids, oils, rubber, pulps, chemical products, etc.) and the traditional transducers with internal measuring chamber cannot be used.
The high thickness of the diapragm makes the product very reliable and suitable for heavy industrial application.
Internal state of the art electronics allows a wide range of current and voltage signal outputs, as well as the innovative “Digital Autozero & Span” function is able to perform an easy and quick automatic zero adjustment after the installation, simply with the touch of a magnetic pen, supplied as standard.

TECHNICAL DATA

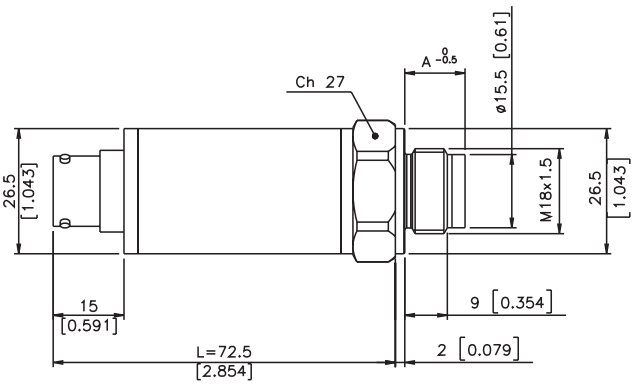
Output signal	**VOLTAGE**	**CURRENT**
Accuracy (**1**)	H ± 0.2% FSO typical (± 0.3% FSO max) 0-60...0-1000 bar M ± 0.5% FSO typical (± 0.6% FSO max) 0-10...0-50 bar	
Measurement range	from 0...10 to 0...1000 bar / from 0...150 to 0...15000 psi	
Resolution	Infinite	
Overpressure (without degrading performance) (**2**)	3 x Full Scale (max 2000 bar)	
Pressure containment (Burst test (**3**)	4 x Full Scale (max 2000 bar)	
Pressure media	Fluid compatible with Inox 17-4PH	
Body materials	Inox AISI 304, Nylon 66F35VO	
Power supply	**B/M/P/R** 10...30Vdc **C/N/Q** 15...30Vdc	10...30Vdc
Supply sensitivity	< 0,0015% FSO/V	
Measuring principle	Bonded strain gauge on stainless steel (4 active arms)	
Insulation resistance	> 1000 MΩ @ 50Vdc	
Zero output signal	B, C, M, N, P, Q, R	4mA (E)
Full scale output signal	B, C, M, N, P, Q, R	20mA (E)
Max current absorption	13mA	32mA
Max allowed load	1mA	see diagram
Zero adjustment	± 10% FSO digital, with magnetic pen	
Span adjustment	± 5% FSO digital, with magnetic pen	
Calibration signal	80% FSO nominal	
Long term stability	< 0.1% FSO/Year typical	
Operating temperature range (process) (**5**)	-40...+120°C (-40...+248°F)	
Compensated temperature range (**4**)	-10...+85°C (14...+185°F)	
Storage temperature range	-40...+125°C (-40...+257°F)	
Temperature effects over compensated range (zero-span)	± 0.01% FSO/°C typical (± 0,02% FSO/°C max.)	
Response time (10...90%FSO)	< 1 msec.	
Start-up time	< 500 msec.	
Mounting position effects	Negligible	
Humidity	Up to 100%RH non-condensing	
Weight	110 gr. nominal	
Mechanical shock	100g/11msec according to IEC 60068-2-27	
Vibrations	20g max at 10...2000Hz according to IEC 60068-2-6	
Ingress protection	IP65/IP66/IP67	
Output short circuit and reverse polarity protection	YES	

FSO = Full Scale Output (output signal at rated pressure)
1 Includes combined effects of Non-Linearity BFSL (Best Fit Straight Line), Hysteresis and Repeatability
2 tested for more than 1000 strokes with single duration < 2msec.
3 tested for more than 100 strokes with single duration < 2msec.
4 temperature outside compensated range may cause zero signal drift
5 ambient and/or electronics part temperature must not exceed 105°C

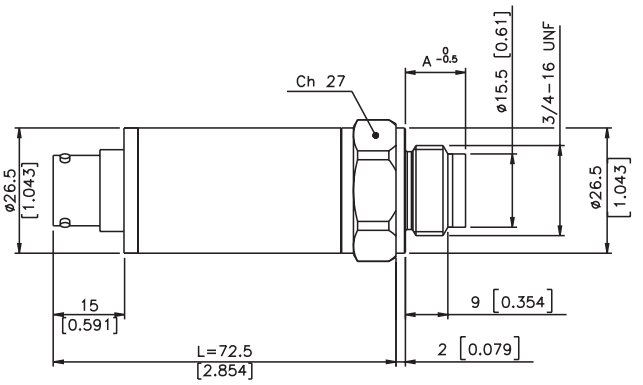
MECHANICAL DIMENSIONS - Process Connections

Dimensions: mm [inches]

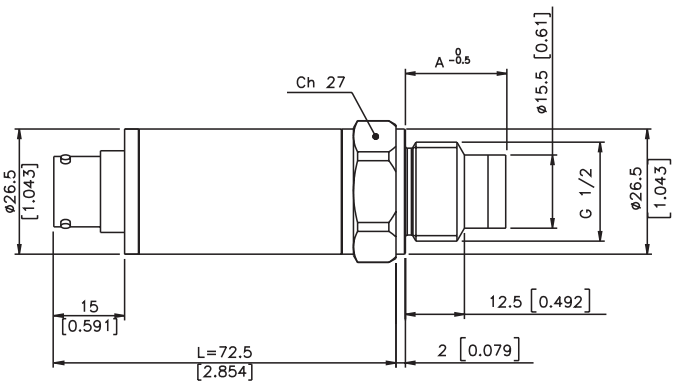
Connection
M18 x 1.5
(code **G**)



Connection
3/4" - 16 UNF
(code **L**)



Connection
1/2" G male
(code **M**)

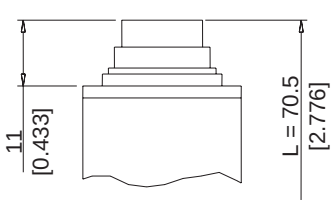


ATTENTION: for installation use a maximum torque force of 40Nm

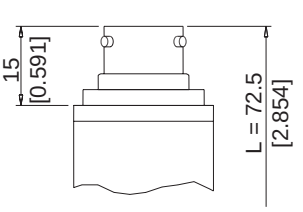
Pressure range		Dimension "A" (mm)			Pressure range		Dimension "A" (mm)			Pressure range		Dimension "A" (mm)		
PSI	**BAR**	**M18x1.5 (G)**	**3/4" (L)**	**1/2" (M)**	**PSI**	**BAR**	**M18x1.5 (G)**	**3/4" (L)**	**1/2" (M)**	**PSI**	**BAR**	**M18x1.5 (G)**	**3/4" (L)**	**1/2" (M)**
150	10				750	50					250			
250	16				1000	60				5000	350			
300	20				1500	100	13.5	13.5	21		400	14.1	14.1	21.6
	25	13	13	20.5	2500	160				7500	500			
	30				3000	200					600			
500	35									10000	700	14.7	14.7	22.2
	40									15000	1000			

ELECTRICAL CONNECTION

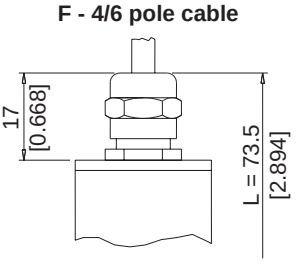
P - 7 pole connector



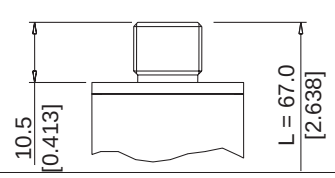
V - 6 pole connector



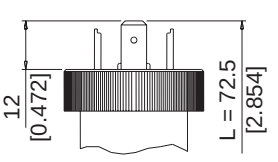
F - 4/6 pole cable



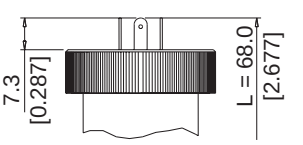
Z - 4 pole connector M12 x 1



E - 4 pole connector solenoid

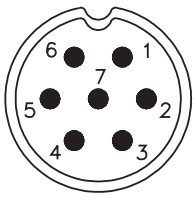


M - 4 pole connector microsolenoid



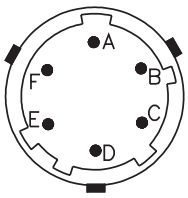
ELECTRICAL CONNECTION - Connectors

P - 7 pole connector



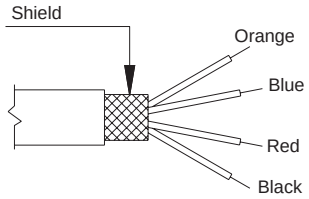
Male connector 09-127-09-07
Protection IP67

V - 6 pole connector



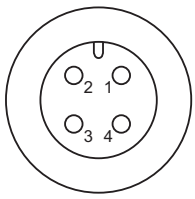
Male connector VPT02A10-6PT2
Protection IP66

F - 4 pole cable



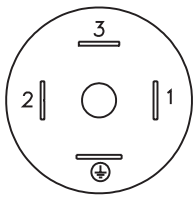
Shielded cable 4x0.25 - 1m. (output E)
Protection IP65

Z - 4 pole male connector M12 x 1



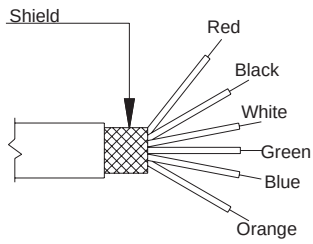
4 pole series 713 male connector
Protection IP67

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



Solenoid DIN 43650A - ISO4400
Protection IP65
Microsolenoid DIN 43650C - ISO4400
Protection IP65

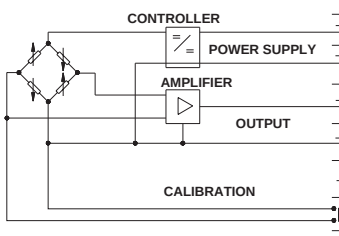
F - 6 pole cable



Shielded cable 6x0.25 - 1m
Protection IP65

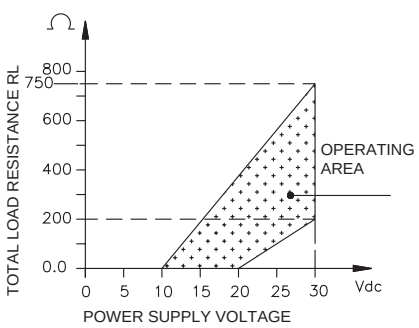
ELECTRICAL CONNECTION - connection diagrams

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

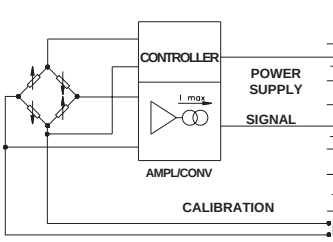


	cod. V	cod. P	cod. F	cod. E/M	cod. Z
+	C	1	White	3	3
−	D	2	Green	2	2
+	A	3	Red	1	1
−	B	4	Yellow or Black	2	2
⏚	Case	Case	Shield	⏚	Case
K	E - F	5 - 6	Blue / Orange	not available	not available

LOAD DIAGRAM
(Current output)



CURRENT AMPLIFIED OUTPUT - mod. **E**



	cod. V	cod. P	cod. F	cod. E/M	cod. Z
+	A	3	Red	1	1
−	B	4	Yellow or Black	2	2
⏚	Case	Case	Shield	⏚	Case
K	E - F	5 - 6	Blue / Orange	not available	not available

DIGITAL AUTOZERO & SPAN - Technical data

Autozero	±10%FS max with zero setting within the sensor accuracy class, @ °T Amb.
Autozero Setting Time	1...10 seconds
Fine Autozero Adjustment	Resolution 6 mV (voltage output); 12 µA (current output)
Fine Autozero Adjustment Amplitude	±100 mV (voltage output), ±0.16 mA (current output) by successive steps with maximum setting time 5 sec. for step
Calibration Function	Signal output generation of 80%FS @ °T Amb.
Calibration Function Setting Time	> 1 sec. (by contacts closed in CAL position)
Autospan	±5%FS max with span setting within the sensor accuracy class, @ °T Amb.
Autospan Setting Time	1...10 sec. (by contacts closed in CAL position)
Partial Reset	Restore of zero factory setting
Partial Reset Setting Time	30...60 sec
Total Reset	Restore of complete factory setting
Total Reset Setting Time	> 60 sec.
Function Activation	By pen with magnetic head (PKIT 312) supplied as standard

For complete functionality and how to use the digital Autozero & Span feature, please download the relevant operating manual on our website **www.gefran.com**

ACCESSORIES ON REQUEST

Connectors

Connection E 3 pole connector + ground DIN43650A ISO4400 Prot. IP65	**CON 006**	**Connection P** 7 pole female cable connector, Prot. IP67	**CON 321**
Connection M 3 pole connector + ground DIN43650C ISO4400 Prot. IP65	**CON 008**	**Connection P** 7 pole female cable connector, Prot. IP40	**CON 320**
Connection Z 4 pole female cable connector M12x1 Prot. IP67	**CON 293**	**Connection P** 7 pole female cable connector 90°, Prot. IP40	**CON 322**
Connection Z 4 pole female cable connector, 90° M12x1 Prot. IP67	**CON 050**	**Connection V** 6 pole Female cable connector, Prot. IP66	**CON 300**

EXTENSION CABLES

6 pole female connector (CON 300) + 2 m (6.5 ft) of cable (6x0.25)	**C02WLS**
6 pole female connector (CON 300) + 4 m (13 ft) of cable (6x0.25)	**C04WLS**
6 pole female connector (CON 300) + 6 m (20 ft) of cable (6x0.25)	**C06WLS**
6 pole female connector (CON 300) + 8 m (25 ft) of cable (6x0.25)	**C08WLS**
6 pole female connector (CON 300) + 10 m (33 ft) of cable (6x0.25)	**C10WLS**
6 pole female connector (CON 300) + 15 m (50 ft) of cable (6x0.25)	**C15WLS**
6 pole female connector (CON 300) + 20 m (66 ft) of cable (6x0.25)	**C20WLS**
6 pole female connector (CON 300) + 25 m (82 ft) of cable (6x0.25)	**C25WLS**
6 pole female connector (CON 300) + 30 m (100 ft) of cable (6x0.25)	**C30WLS**
Other lengths	**on request**

Cable color code	
Pin	**Wire**
A	Red
B	Yellow/Black
C	White
D	Green
E	Blue
F	Orange

ORDERING INFORMATION

Pressure transmitter **TPFADA** □ □ □ □ □ □ □

OUTPUT SIGNAL	
Standard	
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**
0.1...10.1 Vdc	**C**

PROCESS CONNECTION	
Standard	
M18x1.5	**G**
1/2" G male	**M**
On request	
3/4-16 UNF	**L**

ELECTRICAL CONNECTION		
6 pole connector		**V**
7 pole connector		**P**
M12x1 connector	(*)	**Z**
4/6 pole shielded cable	(**)	**F**
4 pole solenoid connector	(*)	**E**
4 pole microsolenoid connector	(*)	**M**

(*) available Autozero function only, NO Cal and NO Span

(**) 1mt cable included as standard. Custom lengths available, at extra cost.

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

RESPONSE TIME	
V	Fast

ACCURACY	
H	±0.2%FS typical 0...60 - 0...1000 bar (only)
M	±0.5%FS typical 0...10 - 0...50 bar (only)

MEASUREMENT RANGE			
Bar		Psi	
B01D	0...10	**P15D**	0...150
B16U	0...16	**P25D**	0...250
B02D	0...20	**P03C**	0...300
B25U	0...25	**P05C**	0...500
B03D	0...30	**P75D**	0...750
B35U	0...35	**P01M**	0...1000
B04D	0...40	**P15C**	0...1500
B05D	0...50	**P02M**	0...2000
B06D	0...60	**P25C**	0...2500
B01C	0...100	**P03M**	0...3000
B16D	0...160	**P04M**	0...4000
B02C	0...200	**P05M**	0...5000
B25D	0...250	**P75C**	0...7500
B35D	0...350	**P10M**	0...10000
B04C	0...400	**P15M**	0...15000
B05C	0...500		
B06C	0...600		
B07C	0...700		
B01M	0...1000		

CALIBRATION STANDARDS
Instruments manufactured by Gefran are calibrated against precision pressure calibration equipment wich is traceable to International Standards

Ex.: **TPFADA - M - G - V - B01C - H - V - -**
Pressure transmitter: 0...5Vdc output signal, M18x1.5 process connection, 6 pole connector, 0...100 bar measurement range, fast response time, 0.2% FS typical accuracy.

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

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