

# 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 diaphragm 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

	VOLTAGE	CURRENT
Output signal		
Accuracy (1)	H $\pm 0.2\%$ FSO typical ( $\pm 0.3\%$ FSO max) 0-60...0-1000 bar M $\pm 0.5\%$ FSO typical ( $\pm 0.6\%$ 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>B/M/P/R</b> 10...30Vdc <b>C/N/Q</b> 15...30Vdc	10...30Vdc
Supply sensitivity	< 0,0015% FSO/V	
Measuring principle	Bonded strain gauge on stainless steel (4 active arms)	
Insulation resistance	> 1000 M $\Omega$ @ 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	$\pm 10\%$ FSO digital, with magnetic pen	
Span adjustment	$\pm 5\%$ 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)	$\pm 0.01\%$ FSO/°C typical ( $\pm 0,02\%$ 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	
Voltage spike protection	> 2kV burst test, to EN61000-4-4	
CE Conformity (89/336 Directive)	EMC Emissions EN61000-6-3 EMC Immunity EN61000-6-2 (10V/m)	

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.

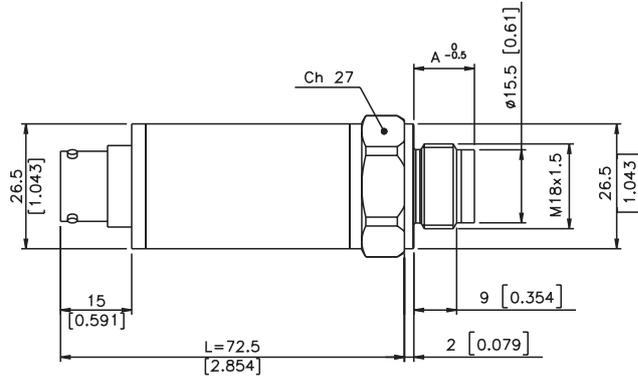
4 temperature outside compensated range may cause zero signal drift

5 ambient and/or electronics part temperature must not exceed 105°C

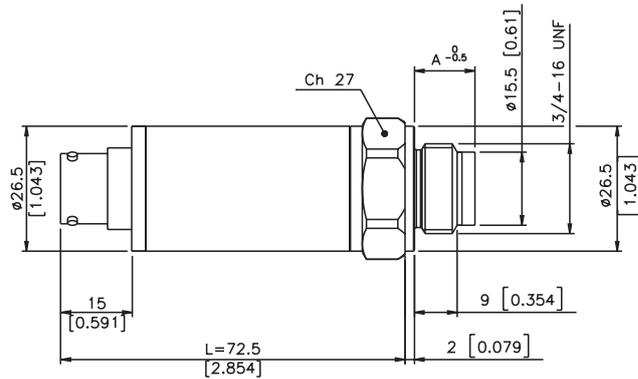
# MECHANICAL DIMENSIONS - Process Connections

Dimensions: mm [inches]

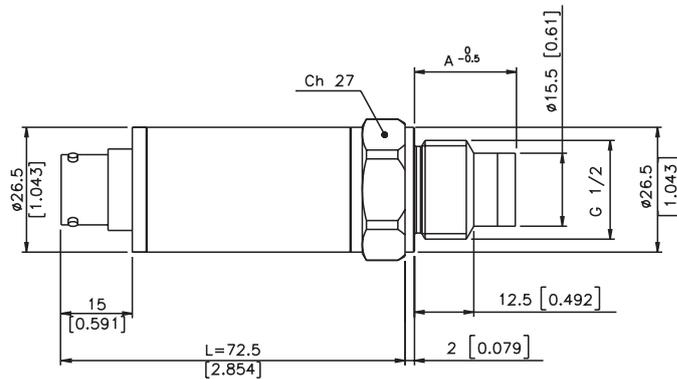
Connection  
M18 x 1.5  
(code **G**)



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



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

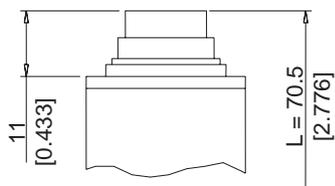


**ATTENTION:** for installation use a maximum torque force of 40Nm

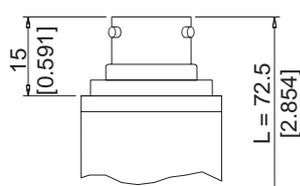
Pressure range		Dimension "A" (mm)			Pressure range		Dimension "A" (mm)			Pressure range		Dimension "A" (mm)		
PSI	BAR	M18x1.5 (G)	3/4" (L)	1/2" (M)	PSI	BAR	M18x1.5 (G)	3/4" (L)	1/2" (M)	PSI	BAR	M18x1.5 (G)	3/4" (L)	1/2" (M)
150	10	13	13	20.5	750	50	13.5	13.5	21	250	250	14.1	14.1	21.6
250	16				1000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

## ELECTRICAL CONNECTION

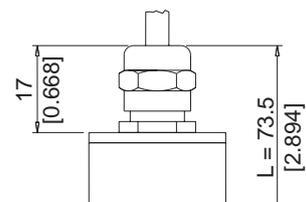
**P - 7 pole connector**



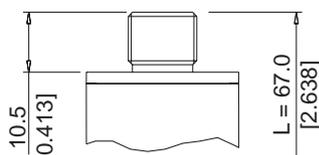
**V - 6 pole connector**



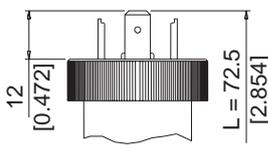
**F - 4/6 pole cable**



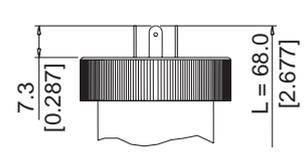
**Z - 4 pole connector  
M12 x 1**



**E - 4 pole connector  
solenoid**

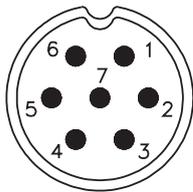


**M - 4 pole connector  
microsolenoid**



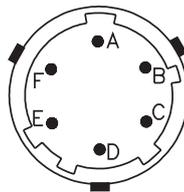
## ELECTRICAL CONNECTION - Connectors

### P - 7 pole connector



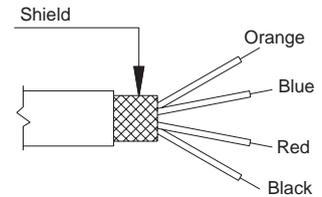
Male connector 09-127-09-07  
Protection IP67

### V - 6 pole connector



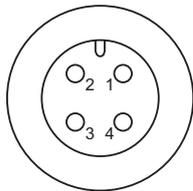
Male connector VPT02A10-6PT2  
Protection IP66

### F - 4 pole cable



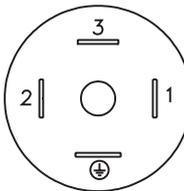
Shielded cable 4x0.25 - 1m. (output E)  
Protection IP65

### Z - 4 pole male connector M12 x 1



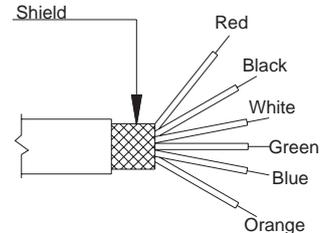
4 pole series 713 male connector  
Protection IP67

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



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

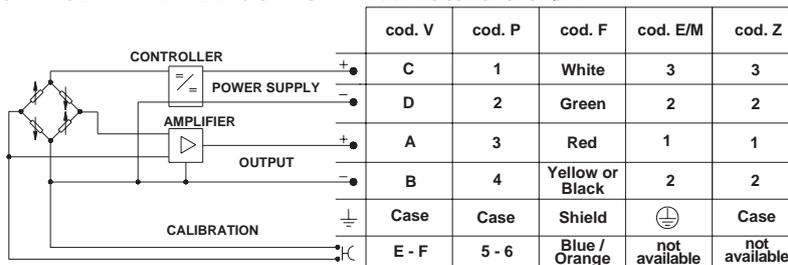
### F - 6 pole cable



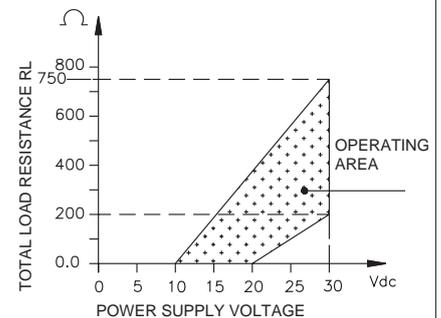
Shielded cable 6x0.25 - 1m  
Protection IP65

## ELECTRICAL CONNECTION - connection diagrams

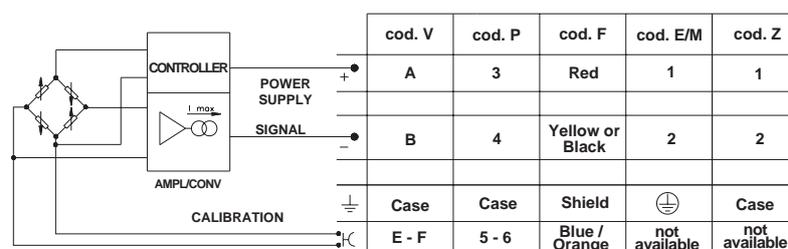
### VOLTAGE AMPLIFIED OUTPUT - mod. B/C/M/N/P/Q/R



### LOAD DIAGRAM (Current output)



### CURRENT AMPLIFIED OUTPUT - mod. E



## 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

## ACCESSORIES ON REQUEST

### Connectors

#### Connection E

3 pole connector + ground DIN43650A ISO4400  
Prot. IP65

**CON 006**

#### Connection M

3 pole connector + ground DIN43650C ISO4400  
Prot. IP65

**CON 008**

#### Connection Z

4 pole female cable connector M12x1  
Prot. IP67

**CON 293**

#### Connection Z

4 pole female cable connector, 90° M12x1  
Prot. IP67

**CON 050**

#### Connection P

7 pole female cable connector,  
Prot. IP67

**CON 321**

#### Connection P

7 pole female cable connector,  
Prot. IP40

**CON 320**

#### Connection P

7 pole female cable connector 90°,  
Prot. IP40

**CON 322**

#### 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)  
6 pole female connector (CON 300) + 4 m (13 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 6 m (20 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 8 m (25 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 10 m (33 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 15 m (50 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 20 m (66 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 25 m (82 ft) of cable (6x0.25)  
6 pole female connector (CON 300) + 30 m (100 ft) of cable (6x0.25)  
Other lengths

**C02WLS**  
**C04WLS**  
**C06WLS**  
**C08WLS**  
**C10WLS**  
**C15WLS**  
**C20WLS**  
**C25WLS**  
**C30WLS**  
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	<b>E</b>
0...10 Vdc	<b>N</b>
On request	
0.1...5.1 Vdc	<b>B</b>
0...5 Vdc	<b>M</b>
1...5 Vdc	<b>P</b>
1...10 Vdc	<b>Q</b>
1...6 Vdc	<b>R</b>
0.1...10.1 Vdc	<b>C</b>

### PROCESS CONNECTION

Standard	
M18x1.5	<b>G</b>
1/2" G male	<b>M</b>
On request	
3/4-16 UNF	<b>L</b>

### ELECTRICAL CONNECTION

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

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

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

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.



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

### RESPONSE TIME

<b>V</b>	Fast
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### ACCURACY

<b>H</b>	±0.2%FS typical 0...60 - 0...1000 bar (only)
<b>M</b>	±0.5%FS typical 0...10 - 0...50 bar (only)

### MEASUREMENT RANGE

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

### CALIBRATION STANDARDS

Instruments calibrated against precision pressure calibration equipment which are traceable to International Standards

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

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