



#### 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.



This symbol present on the product label stands for further indications on product manual. For correct and safe installation, follow the instructions and observe the warnings contained in this manual. No hazards shall arise by any reasonably foreseeable misuse in a way not intended, and not described in this manual.

The complete manual is available for download from the website [www.gefran.com](http://www.gefran.com)  
UL file number E216851

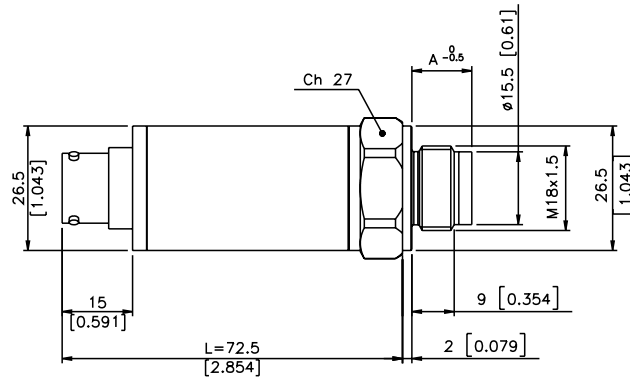
#### TECHNICAL DATA

Putput signal	VOLTAGE	CURRENT
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	
Power supply (6)	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 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	20mA	40mA
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	
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 ; see possible restrictions in the paragraphs "Electrical connections" and "Accessories on request". 6 The devices must be supplied with a Class 2 Power Supply (as for NEC) or LPS Power Supply (as for EN 60950). If devices are permanently connected to the machine it's requested an external switch or circuit breaker and external overcurrent protection.	

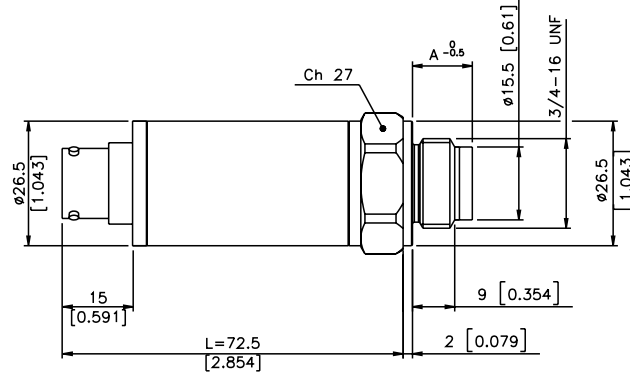
## MECHANICAL DIMENSIONS - Process Connections

Dimensions: mm [inches]

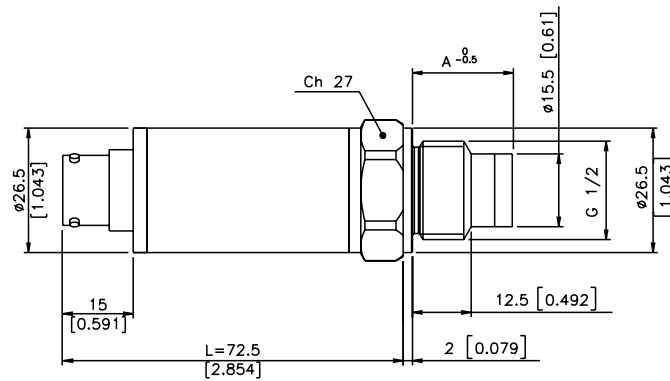
Connection  
M18 x 1.5  
(code **G**)



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



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

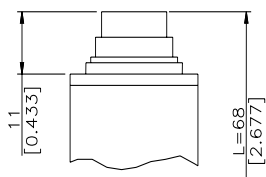


**ATTENTION:** for installation use a maximum torque force of 40Nm

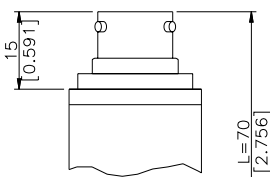
Pressure range PSI BAR	Dimension "A" (mm)			Pressure range PSI BAR	Dimension "A" (mm)			Pressure range PSI BAR	Dimension "A" (mm)		
	M18x1.5 (G)	3/4" (L)	1/2" (M)		M18x1.5 (G)	3/4" (L)	1/2" (M)		M18x1.5 (G)	3/4" (L)	1/2" (M)
150 10	13	13	20.5	750 50	13.5	13.5	21	250	14.1	14.1	21.6
250 16				1000 60	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

## ELECTRICAL CONNECTION

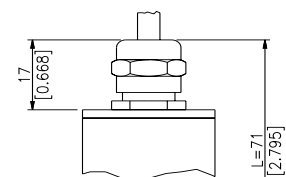
**P - 7 pole connector**



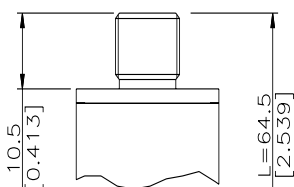
**V - 6 pole connector**



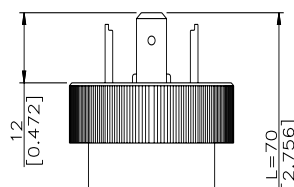
**F - 4/6 pole cable**



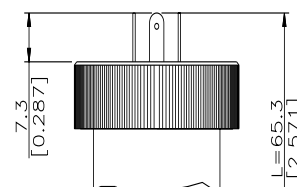
**Z - 4 pole connector M12 x 1**



**E - 4 pole connector EN 175301-803A**

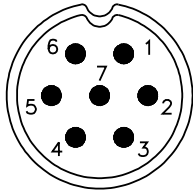


**M - 4 pole connector EN 175301-803C**

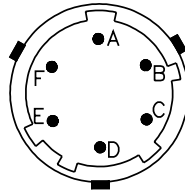


## ELECTRICAL CONNECTION - Connectors

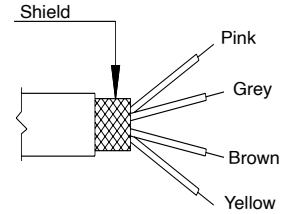
**P - 7 pole connector**



**V - 6 pole connector**

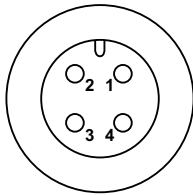


**F - 4 pole cable**

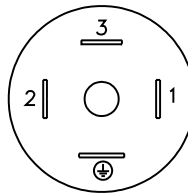


Shielded cable 4x0.25 - 1m. (output E)

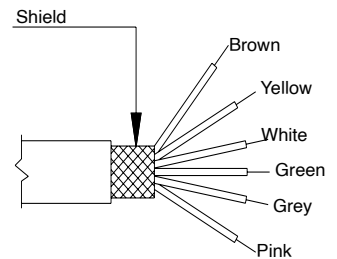
**Z - 4 pole male connector  
M12 x 1**



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



**F - 6 pole cable**



Shielded cable 6x0.25 - 1m

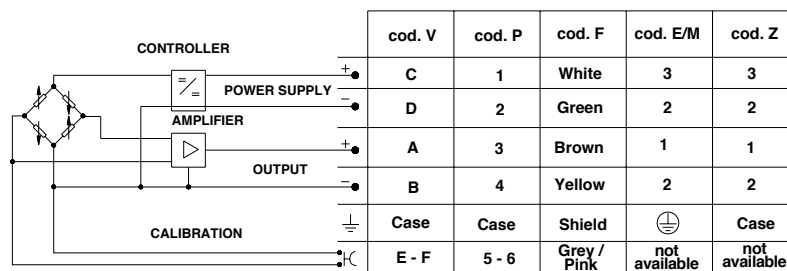
## ELECTRICAL CONNECTION - ratings

ELECTRICAL CONNECTION	IP RATING	cULus CERTIFIED	TEMPERATURE RATINGS *
P-7 pole connector	IP67		-40+100 °C
V-6 pole connector	IP66		-40+105 °C
F - 4/6 pole cable	IP65		-20+80°C
Z - 4 pole male connector M12 x 1	IP67	X	-30+105 °C
E - 4 pole solenoid connector EN 175301-803-A	IP65	X	-40+105 °C
M - 4 pole microsolenoid connector EN 175301-803-C	IP65	X	-40+105 °C

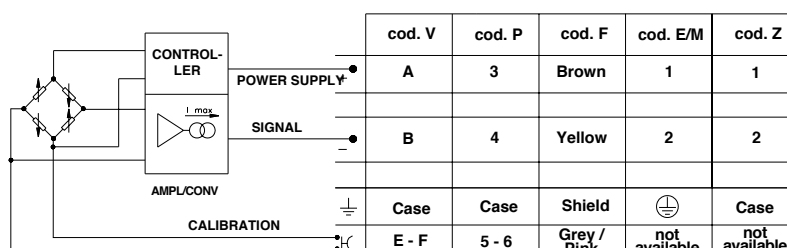
\* The operating temperature ranges, except where expressly indicated, are also applicable in the UL scope.

## ELECTRICAL CONNECTION - connection diagrams

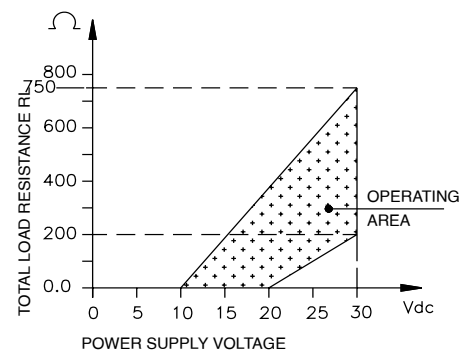
**VOLTAGE AMPLIFIED OUTPUT - mod. B/C/M/N/P/Q/R**



**CURRENT AMPLIFIED OUTPUT - mod. E**



**LOAD DIAGRAM  
(Current output)**



## 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](http://www.gefran.com)

## ACCESSORIES ON REQUEST

### MATING CONNECTORS

DESCRIPTION	IP RATING	CODE	cULus CERTIFIED	TEMPERATURE RATINGS **
<b>Connection E</b> 3 pole connector + ground EN 175301-803-A H=32	IP65	CON006	X	-40+125 °C -40+65°C (cULus)
		CON113	X	-40+90°C
<b>Connection E</b> 3 pole connector + ground EN 175301-803-A H=28	IP65	CON045	X	-40+125 °C -40+65°C (cULus)
		CON114	X	-40+90°C
<b>Connection M</b> 3 pole connector + ground EN 175301-803-C	IP65	CON008		-40+125 °C
		CON115	X	-40+90°C
<b>Connection Z</b> 4 pole female cable connector M12x1	IP67	CON293		-25+85°C
		CON087	X	-25+90°C
<b>Connection Z</b> 4 pole female cable connector, 90° M12x1	IP67	CON050		-25+85°C
		CON088	X	-25+90°C
<b>Connection P</b> 7 pole female cable connector	IP67	CON321		-40+95°C
<b>Connection P</b> 7 pole female cable connector	IP40	CON320		-40+85°C
<b>Connection P</b> 7 pole female cable connector 90°	IP40	CON322		-40+85°C
<b>Connection V</b> 6 pole Female cable connector	IP66	CON300		-40+105°C

## ACCESSORIES ON REQUEST

### EXTENSION CABLES\*

DESCRIPTION	IP RATING	CODE	cULus CERTIFIED	TEMPERATURE RATINGS **	CABLE COLOR CODE	
					Pin	Wire
<b>Connection V</b> 6 pole female connector (CON 300) + 2/4/6/8/10/15/20/25/30 m (6.5/13/20/25/33/50/66/82/100 ft) of cable (6x0.25)	IP66	C02WLS		-40+90°C	<b>A</b>	Red
		C04WLS			<b>B</b>	Yellow/Black
		C06WLS			<b>C</b>	White
		C08WLS			<b>D</b>	Green
		C10WLS			<b>E</b>	Blue
		C15WLS			<b>F</b>	Orange
		C20WLS				
		C25WLS				
		C30WLS				
<b>Connection Z</b> female connector M12x1 + 2/3/5/10m of cable	IP67	CAV220	X	-30+80°C	<b>1</b>	Brown
		CAV221			<b>2</b>	White
		CAV222			<b>3</b>	Blue
		CAV223			<b>4</b>	Black

\* Other lengths on request

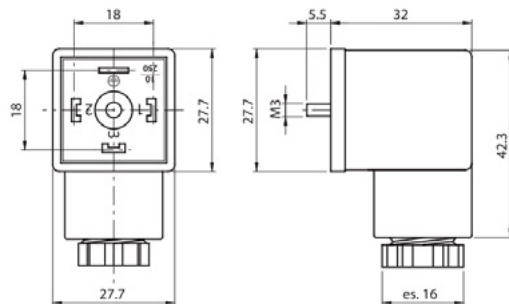
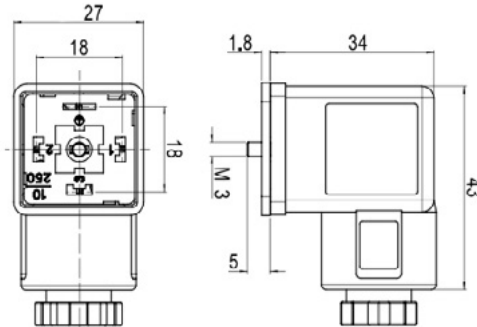
\*\* The nominal temperature ranges, except where expressly indicated, are also applicable in the UL scope.

For cULus applications extension cables, a 6 pole 24AWG Style 2464 cable is advised

### SEALING CODE ACCORDING TO PROCESS CONNECTION

PROCESS CONNECTION	STEEL + NBR
M18x1,5	RON306
1/2" G male	RON302
3/4-16 UNF	RON312

### ACCESSORIES DRAWINGS

DESCRIPTION	CODE	DRAWING
<b>Connection E</b> 3 pole connector + ground EN 175301-803-A H=32	CON006	
	CON113	

DESCRIPTION	CODE	DRAWING
<b>Connection E</b> 3 pole connector + ground EN 175301-803-A H=28	CON045	
	CON114	
<b>Connection M</b> 3 pole connector + ground micro form EN 175301-803-C	CON008	
<b>Connection M</b> 3 pole connector + ground micro form EN 175301-803-C	CON115	
<b>Connection Z</b> 4 pole female cable connector M12x1	CON293	
	CON087	

<p><b>Connection Z</b> 4 pole female cable connector, 90° M12x1</p>	<p>CON050</p>	
	<p>CON088</p>	
<p><b>Connection P</b> 7 pole female cable connector</p>	<p>CON321</p>	
<p><b>Connection P</b> 7 pole female cable connector</p>	<p>CON320</p>	
<p><b>Connection P</b> 7 pole female cable connector 90°</p>	<p>CON322</p>	
<p><b>Connection V</b> 6 pole Female cable connector</p>	<p>CON300</p>	
<p><b>Connection V</b> 6 pole female connector (CON 300) + 2/4/6/8/10/15/20/25/30m of cable (6x0.25)</p>	<p>C02WLS</p>	
<p><b>Connection Z</b> female connector M12x1 + 2/3/5/10m of cable</p>	<p>CAV220 CAV221 CAV222 CAV223</p>	

## ORDERING INFORMATION

Pressure transmitter

**TPFADA**



OUTPUT SIGNAL	
<b>Standard</b>	
4...20 mA	<b>E</b>
0...10 Vdc	<b>N</b>
<b>On request</b>	
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	
<b>Standard</b>	
M18x1.5	<b>G</b>
1/2" G male	<b>M</b>
<b>On request</b>	
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>
4pole 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.

(\*\*\*) 7 pole connector(P), 6 pole connector(V) and shielded cable(F), UL certification not available

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

RESPONSE TIME	
<b>V</b>	Fast

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 manufactured by Gefran are calibrated against precision pressure calibration equipment which 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 2014/30/EU compatibility directive
- RoHS 2011/65/EU directive

Electrical installation requirements and Conformity certificate are available on our web site: [www.gefran.com](http://www.gefran.com)

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

**GEFRAN**

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