



### Main Features

- Ranges: from 0...50 bar to 0...1000 bar (0...750psi to 0...1500psi)
- Accuracy:  $\pm 0.1\%$  FSO typical
- Complete range of voltage/current outputs
- Stainless Steel construction
- Protection rating: IP65/IP67
- Wetted parts 17-4PH
- Temperature range -40...+105°C

Series TPSA transmitters are based on the extensimetric measurement principle with strain gauges on metal base. An innovative mechanical structure makes the sensor completely insensitive to tightening during installation. This transmitter is suitable for all those applications where in addition to ruggedness and reliability high accuracy is required.

### TECHNICAL DATA

Output signal	VOLTAGE	CURRENT
Accuracy (1)	$\pm 0,1\%$ FSO typical; $\pm 0,15\%$ FSO max $\geq 100\text{bar}/1500\text{psi}$ $\pm 0,15\%$ FSO typical; $\pm 0,25\%$ FSO max $< 100\text{bar}/1500\text{psi}$	
Resolution	Infinite	
Overpressure (without degrading performance) (2)	See table	
Pressure containment (Burst test) (3)	See table	
Pressure media	Fluid compatible with INOX 17-4PH Stainless Steel	
Body materials	Stainless Steel INOX AISI 304 and Nylon 66GF35V0	
Power supply	<b>C/N/Q</b> 18...32Vdc <b>B/M/P/R</b> 12...32Vdc	<b>E</b> 10...30Vdc
Supply sensitivity	$< 0,0015\%$ FSO/V	
Insulation resistance	$> 1000 \text{ M}\Omega$ a 50Volt	
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	$< 30\text{mA}$	$< 32\text{mA}$
Max allowed load	1mA	See diagram
Long term stability	$< 0,1\%$ FSO/per year	
Operating temperature range (process)	-40...+105°C (-40...+221°F)	
Compensated temperature range	-10...+85°C (14...+185°F)	
Storage temperature range	-40...+125°C (-40...+257°F)	
Temperature effects over compensated range (zero-span)	$\pm 0,008\%$ FSO/°C typical ( $\pm 0,015\%$ FSO/°C max.)	
Response time (10...90%FSO)	$< 1 \text{ msec.}$	
Start-up time	$< 500 \text{ msec.}$	
Mounting position effects	Negligible	
Humidity	Fino a 100%RH non condensing	
Weight	110 gr. nominal	
Mechanical shock	100 g / 1 msec. according to IEC 68-2-6	
Vibrations	20 g max a 15-2000Hz msec. according to IEC68-2-6	
Ingress protection	IP65/IP66/IP67	
Output short circuit and reverse polarity protection	YES	

FSO = Full Scale Output

1 BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability

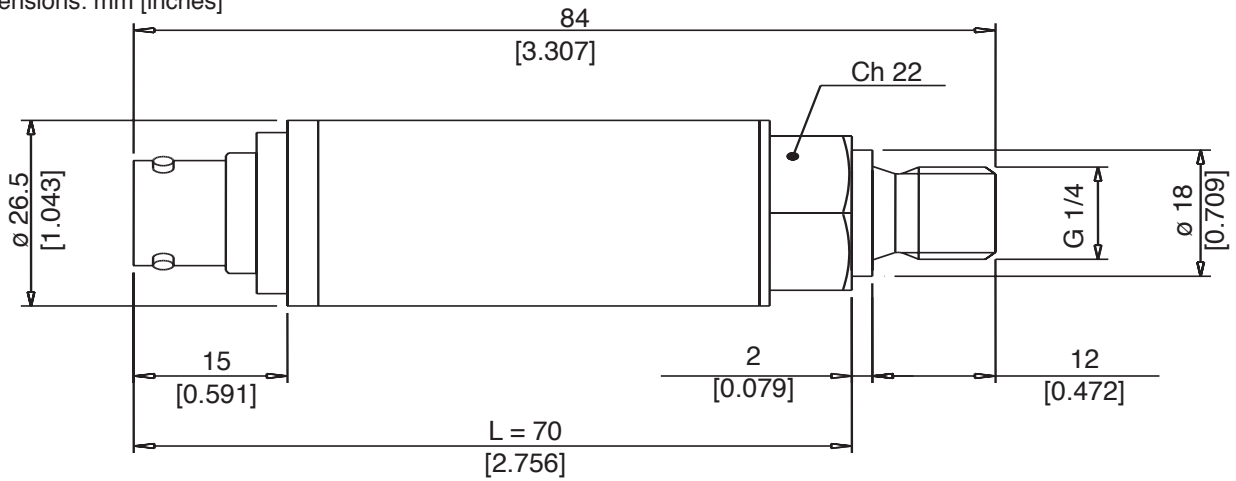
2 tested for more than 1000 strokes with single duration  $< 2\text{msec.}$

3 tested for more than 100 strokes with single duration  $< 2\text{msec.}$

MEASUREMENT RANGE (Bar)	50	100	160	200	250	350	400	500	600	700	1000
Overpressure	150	300	480	600	750	1050	1200	1500	1800	2000	2000
Burst test	250	500	800	1000	1250	1750	2000	2500	2500	2500	2500

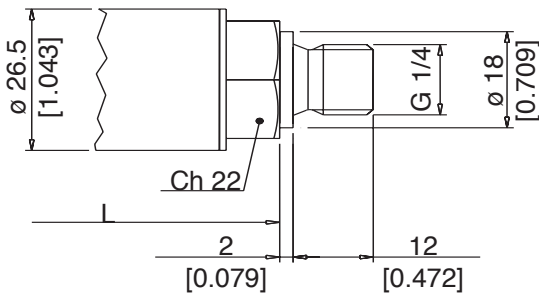
# INSTALLATION DRAWINGS

Dimensions: mm [inches]

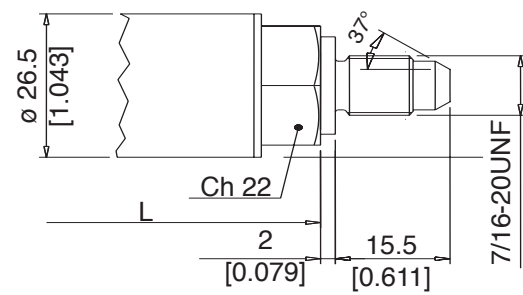


## PRESSURE CONNECTION

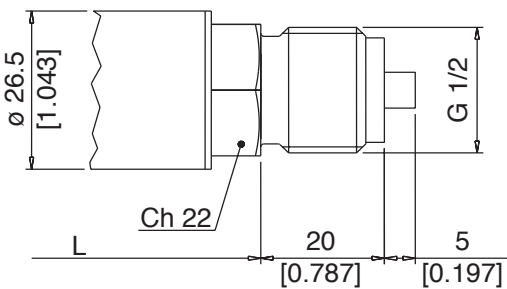
(1) G 1/4 MALE (DIN 3852-A)



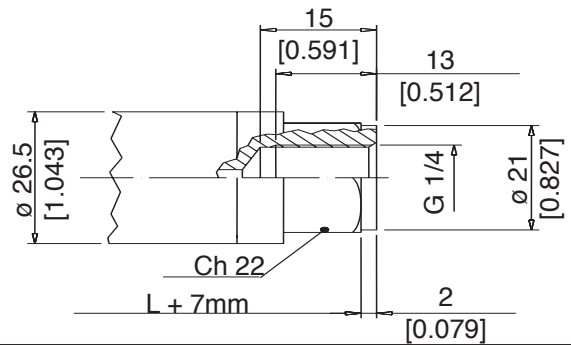
(2) SAE 04 AS4395 - E



(3) G 1/2 A (DIN 16288)

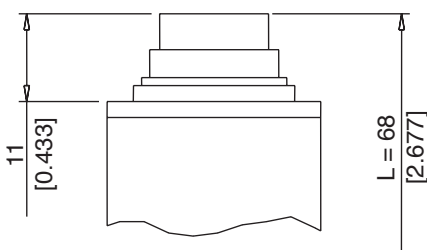


(4) G 1/4 FEMALE

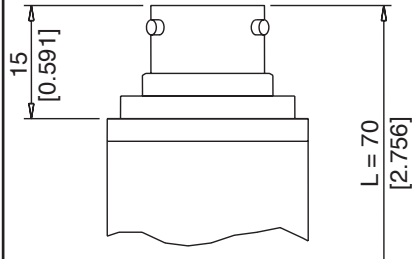


## ELECTRICAL CONNECTION

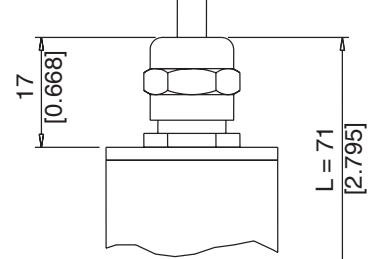
P - 7 pole connector



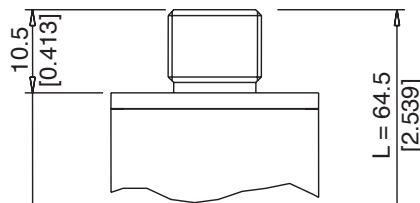
V - 6 pole connector



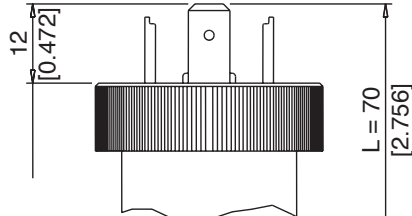
F - 2/4 pole cable



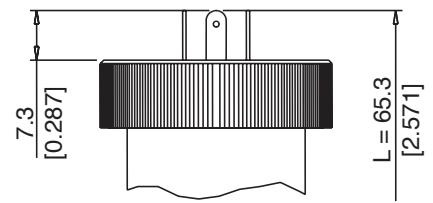
Z - 4 pole connector  
M12 x 1



E - 4 pole connector  
solenoid

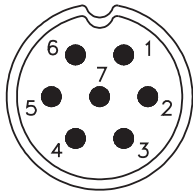


M - 4 pole connector  
microsolenoid



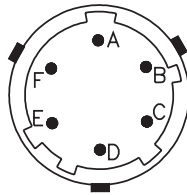
## ELECTRICAL CONNECTION - Connectors

### P - 7-pole connector



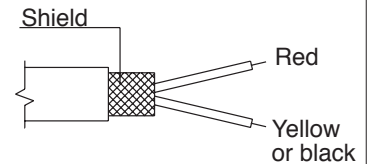
Male connector 09-127-09-07  
Protection IP67

### V - 6-pole connector



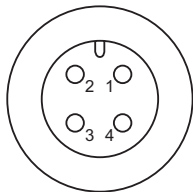
Male connector VPT02A10-6PT2  
Protection IP66

### F - 2 pole cable



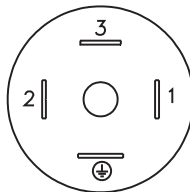
Shielded cable 2x0.25 - 2m. (output E)  
Protection IP65

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



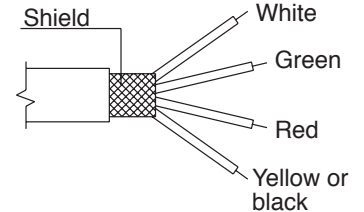
4 pole series 713 male connector  
Protection IP67

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



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

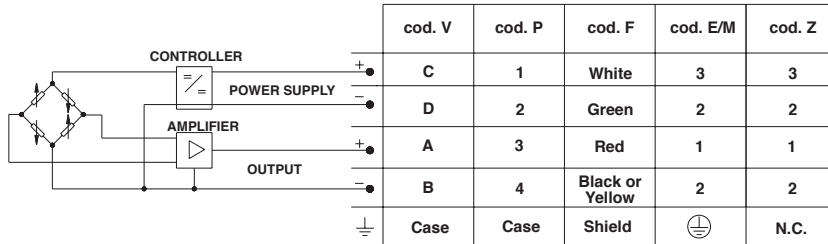
### F - 4 pole cable



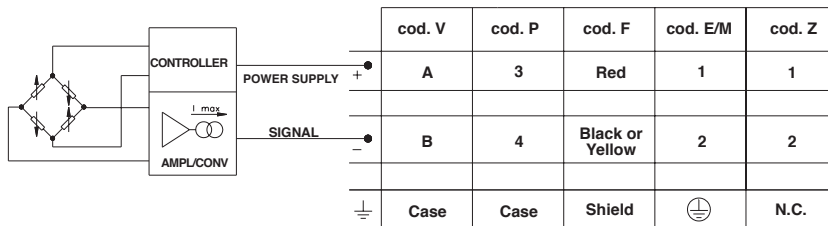
Shielded cable 4x0.25 - 2m  
Protection IP65

## ELECTRICAL CONNECTION - connection diagrams

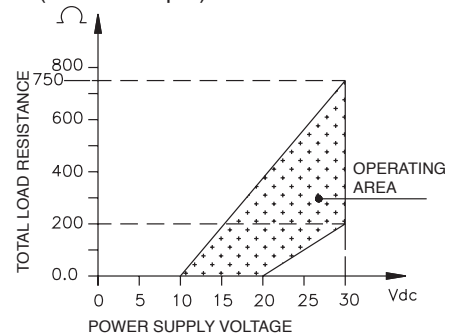
### VOLTAGE AMPLIFIED OUTPUT - mod. B/C/M/N/P/Q/R



### CURRENT AMPLIFIED OUTPUT - mod. E



### LOAD DIAGRAM (Current output)



## ACCESSORIES ON REQUEST

### Connectors Plugs

#### Connection E

3 poles connector + ground DIN43650A ISO4400 **CON 006**  
Prot. IP65

#### Connection Z

4 poles connector  
Prot. IP67

**CON 293**

#### Connection M

3 poles connector + ground DIN43650C ISO4400 **CON 008**  
Prot. IP65

#### Connection P

7 poles female cable connector Prot. IP67

**CON 321**

#### Connection V

6 poles female cable connector Prot. IP66

**CON 300**

## EXTENSION CABLES

6-pin connector with 8m (25ft) cable

**C08WLS**

6-pin connector with 15m (50ft) cable

**C15WLS**

6-pin connector with 30m (100ft) cable

**C30WLS**

Other lengths

**consult factory**

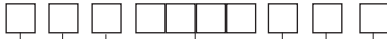
### Cable color code

Connector	Wire
A	Red
B	Yellow/Black
C	White
D	Green
E	Blue
F	Orange

## ORDERING INFORMATION

Pressure transmitter

TPSA



OUTPUT SIGNAL	
<b>Standard</b>	
0,1 ... 10,1 Vdc	<b>C</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>

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

### RESPONSE TIME

**V** Fast (< 1 msec)

### ACCURACY

**T** ± 0,1% FSO typical 100bar/1500psi  
± 0,15% FSO typical 100bar/1500ps

PRESSURE CONNECTION	
<b>Standard</b>	
G 1/4 gas male (DIN 3852-A)	<b>1</b>
<b>On request</b>	
7/16-20 UNF-2A male (SAE 4 for AS4395-E)	<b>2</b>
G 1/2A (DIN 16288)	<b>3</b>
G 1/4 gas female	<b>4</b>
1/8-27 NPT female	<b>5</b>
1/4 - 18 NPT female	<b>6</b>
1/4 - 18 NPT male	<b>7</b>
M14 x 1,5 male	<b>8</b>
1/8 - 27 NPT male	<b>9</b>
G 1/4 gas male (DIN 3852-E)	<b>E</b>
M12 x 1,5 male	<b>R</b>
7/16-20 UNF-2A male (SAE 4 for J1926-2) (*)	<b>K</b>
7/16-20 UNF-2A female (SAE 4)	<b>F</b>

(\*) Max. working pressure: 630 bar (9137 psi)

ELECTRICAL CONNECTION	
4-pole connector solenoid	<b>E</b>
Shielded cable	<b>F</b>
4-pole connector M12 x 1	<b>Z</b>
4-pole connector microsolenoid	<b>M</b>
7 pole connector	<b>P</b>
6 pole connector	<b>V</b>

MEASUREMENT RANGE			
	bar		psi
<b>B05D</b>	0..50	<b>P75D</b>	0..750
<b>B01C</b>	0..100	<b>P15C</b>	0..1500
<b>B16D</b>	0..160	<b>P20C</b>	0..2000
<b>B02C</b>	0..200	<b>P25C</b>	0..2500
<b>B25D</b>	0..250	<b>P03M</b>	0..3000
<b>B35D</b>	0..350	<b>P05M</b>	0..5000
<b>B04C</b>	0..400	<b>P75C</b>	0..7500
<b>B05C</b>	0..500	<b>P10M</b>	0..10000
<b>B06C</b>	0..600	<b>P15M</b>	0..15000
<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: TPSA - N - 1 - P - B35D - T - V**

Pressure transmitter TPSA with 0...10Vdc output signal, G 1/4 male pressure connection, 7 pole connector, 0...350 bar measurement range, ± 0.1% FSO accuracy, 1msec response time.

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

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