



### Main features

- Ranges: from 0...10 bar to 0...1000 bar (0...150psi to 0...15000psi)
- Accuracy:  $\pm 0.15\%$  FSO typical
- Protection rating: IP65/IP67
- Wetted parts 17-4PH
- Temperature range  $-40...+120^{\circ}\text{C}$

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

### TECHNICAL DATA

|  |  |
|--|--|
| Accuracy (1)   | $\pm 0.15\%$ FSO typical; $\pm 0.2\%$ FSO max $>200\text{bar}/3000\text{psi}$<br>$\pm 0.25\%$ FSO typical; $\pm 0.5\%$ FSO max $\leq 200\text{bar}/3000\text{psi}$ |
| Resolution   | Infinite   |
| Overpressure (without degrading performance) (2)       | See table  |
| Pressure containment (Burst test) (3)                  | See table  |
| Wetted parts   | Fluid compatible with INOX 17-4PH Stainless Steel  |
| Body materials   | INOX AISI 304 Stainless Steel and Nylon 66GF35V0   |
| Power supply   | 10 (max 15) Vdc/ac RMS   |
| Common mode voltage                                    | Typical 5V @ 10V supply  |
| Output impedance                                       | 350 $\Omega$ ( $\pm 1$ )   |
| Load impedance   | $> 1000 \text{ K}\Omega$   |
| Insulation resistance                                  | $> 1000 \text{ M}\Omega$ @ 50Volt  |
| Zero offset and span setting                           | $\pm 0.5\%$ FSO  |
| Output voltage (sensitivity)                           | 10...40bar / 150...500psi 1,5mV/V<br>50...60bar / 750...1000psi 2mV/V<br>100...1000bar / 1500...15000psi 3mV/V   |
| Long term stability                                    | $< 0.1\%$ FSO per year   |
| Operating temperature range (process) (5)              | $-40...+120^{\circ}\text{C}$ ( $-40...+248^{\circ}\text{F}$ )  |
| Compensated temperature range (4)                      | $-20...+85^{\circ}\text{C}$ ( $-4...+185^{\circ}\text{F}$ )  |
| Storage temperature range                              | $-40...+125^{\circ}\text{C}$ ( $-40...+257^{\circ}\text{F}$ )  |
| Temperature effects over compensated range (zero-span) | $\pm 0.01\%$ FSO/ $^{\circ}\text{C}$ typical ( $\pm 0.02\%$ FSO/ $^{\circ}\text{C}$ max.)  |
| Mounting position effects                              | Negligible   |
| Humidity   | Up to 100% RH non condensing   |
| Weight   | 130 gr. nominal  |
| Mechanical shock                                       | 100 g / 11 msec. according to IEC 60068-2-27   |
| Vibrations   | 20 g max @ 10-2000Hz according to IEC 60068-2-6  |
| Ingress protection                                     | IP65/IP66/IP67   |

FSO = Full Scale Output

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  $< 2\text{msec}$ .

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

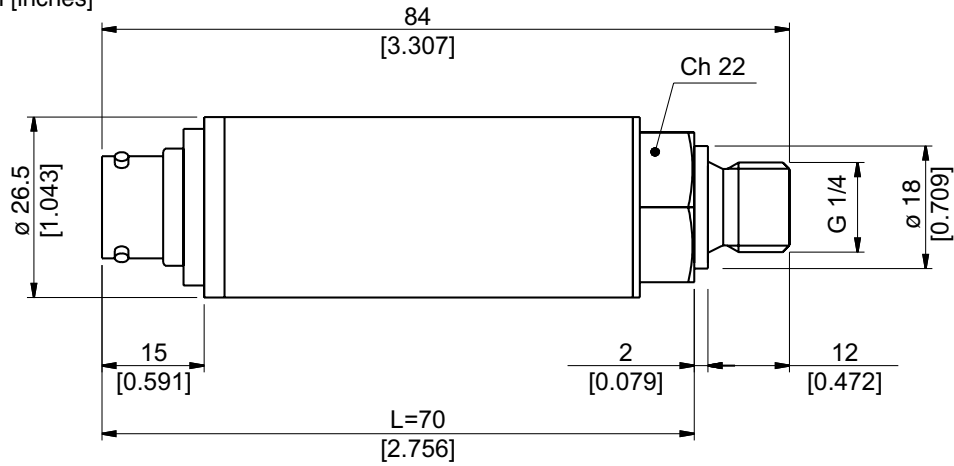
4 temperature outside compensated range may cause zero signal drift

5 ambient and/or electronics part temperature must not exceed  $105^{\circ}\text{C}$

| MEASUR. RANGE (Bar) | 10 | 16 | 20 | 25  | 30  | 35  | 40  | 50  | 60  | 100 | 160 | 200 | 250  | 350  | 400  | 500  | 600  | 700  | 1000 |
|---------------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|
| Overpressure        | 20 | 32 | 40 | 50  | 60  | 70  | 80  | 100 | 120 | 200 | 320 | 400 | 500  | 700  | 800  | 1000 | 1200 | 1400 | 2000 |
| Burst test          | 40 | 64 | 80 | 100 | 120 | 140 | 160 | 200 | 240 | 400 | 640 | 800 | 1000 | 1400 | 1600 | 2000 | 2400 | 2500 | 2500 |

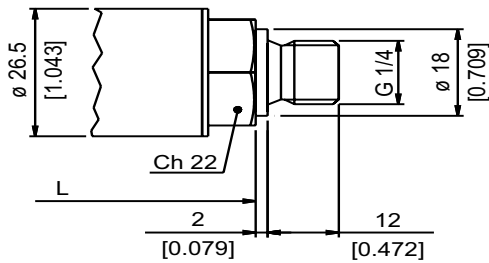
# INSTALLATION DRAWINGS

Dimensions: mm [inches]

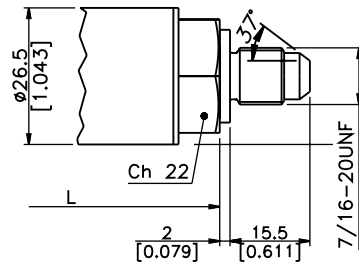


## PRESSURE CONNECTION

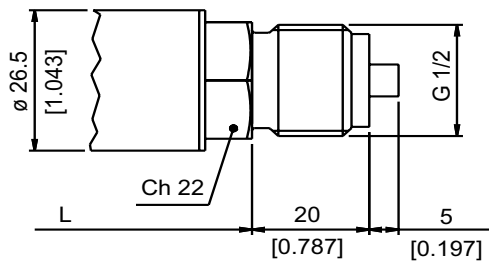
(1) G 1/4 MALE (DIN 3852-A)



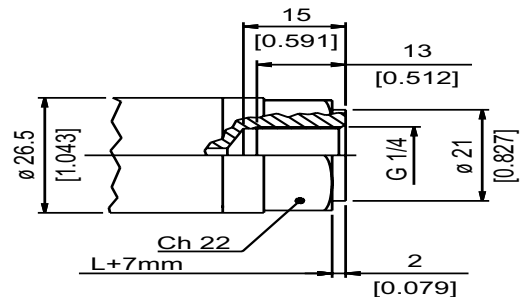
(2) SAE 04 AS4395 - E



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

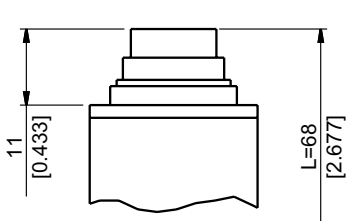


(4) G 1/4 FEMALE

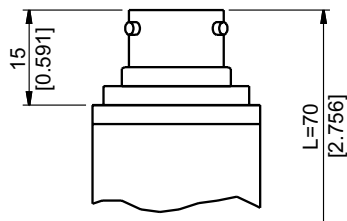


## ELECTRICAL CONNECTION

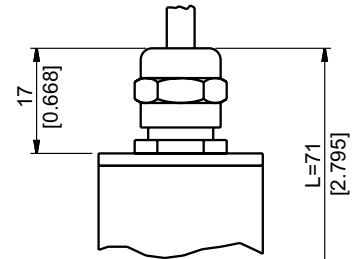
P - 7 pole connector



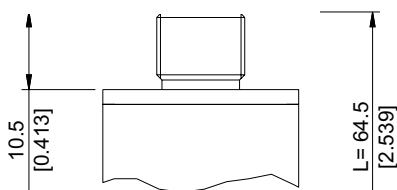
V - 6 pole connector



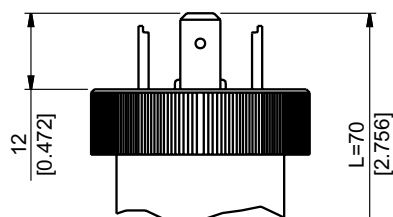
F - 6 pole cable



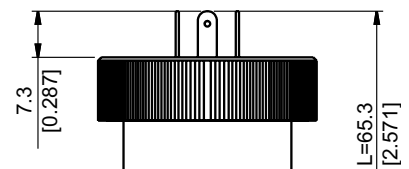
Z - 4 pole connector  
M12 x 1



E - 4 pole connector  
solenoid

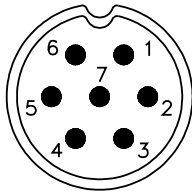


M - 4 pole connector  
microsolenoid



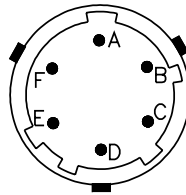
## ELECTRICAL CONNECTION - Connectors

### P - 7-pole connector



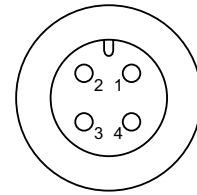
Male connector 09-127-09-07  
Protection IP67

### V - 6-pole connector



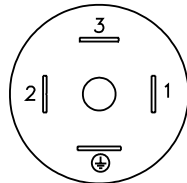
Male connector VPT02A10-6PT2  
Protection IP66

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



Male connector 4 pole series 713  
Protection IP67

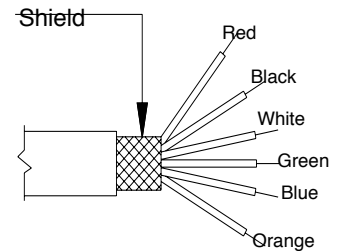
### E - 4 pole solenoid connector M - 4 pole microsolenoid connector



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

Protection IP65  
Protection IP65

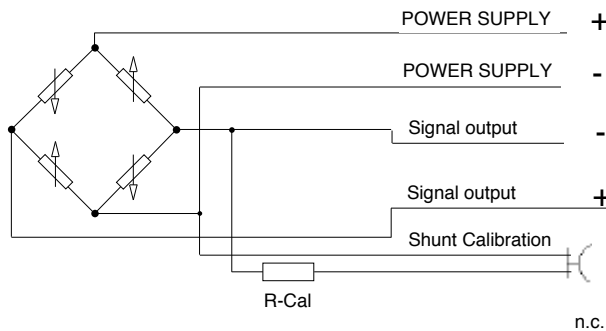
### F - 6 pole cable



F - Shielded cable 6 x 0.25 - 1m.

## ELECTRICAL CONNECTION - connection diagrams

### mV/V output



| Code V | Code P | Code F                    | Code E/M      | Code Z        |
|--------|--------|---------------------------|---------------|---------------|
| C      | 1      | White                     | 3             | 1             |
| D      | 2      | Green                     |               | 2             |
| B      | 4      | Black or Yellow           | 2             | 4             |
| A      | 3      | Red                       | 1             | 3             |
| E - F  | 5 - 6  | Blue/<br>Orange or Violet | Not available | Not available |
|        | 7      |                           |               |               |

Cable shield connected to transducer body

## 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

#### O-ring

O-ring seal for G1/4 gas male pressure connector (1)

RON 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

C02W  
C04W  
C06W  
C08W  
C10W  
C15W  
C20W  
C25W  
C30W  
on request

| Cable color code |        |
|------------------|--------|
| Pin              | Wire   |
| A                | Red    |
| B                | Black  |
| C                | White  |
| D                | Green  |
| E                | Blue   |
| F                | Orange |

## ORDERING INFORMATION

Pressure transducer

TPS

| PRESSURE CONNECTION                         |          |
|---|----------|
| <b>Standard</b>                             |          |
| G 1/4 gas male                              | <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 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               | <b>Z *</b> |
| 4-pole connector microsolenoid | <b>M *</b> |
| 7 pole connector               | <b>P</b>   |
| 6 pole connector               | <b>V</b>   |

(\*) Calibration signal not available

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

### ACCURACY

|          |  |
|----------|--|
| <b>T</b> | ±0.15% FSO typical >200bar/3000psi<br>±0.25% FSO typical ≤200bar/3000psi |
|----------|--|

### 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>B03D</b> | 0..30   |             |          |
| <b>B35U</b> | 0..35   | <b>P05C</b> | 0..500   |
| <b>B04D</b> | 0..40   |             |          |
| <b>B05D</b> | 0.50    | <b>P75D</b> | 0..750   |
| <b>B06D</b> | 0..60   | <b>P01M</b> | 0..1000  |
| <b>B01C</b> | 0..100  | <b>P15C</b> | 0..1500  |
| <b>B16D</b> | 0..160  | <b>P02M</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>P04M</b> | 0..4000  |
| <b>B04C</b> | 0..400  | <b>P05M</b> | 0..5000  |
| <b>B05C</b> | 0..500  | <b>P75C</b> | 0..7500  |
| <b>B06C</b> | 0..600  |             |          |
| <b>B07C</b> | 0..700  | <b>P10M</b> | 0..10000 |
| <b>B01M</b> | 0..1000 | <b>P15M</b> | 0..15000 |

### CALIBRATION STANDARDS

Instruments manufactured by Gefran are calibrated against precision pressure calibration equipment which is traceable to International Standards.

Ex.: **TPS - 4 - V - B07C - T**

Pressure transducer TPS with G 1/4 female process connection, 6 pole connector, 0..700 bar measurement range, ± 0.15% FSO accuracy.

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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