GEFRAN

# TK

*PRESSURE TRANSMITTER*



### *Main Features*

- *Ranges: from 0...3 to 0...1000 bar and ranges from -1...+1 to -1...+10 bar*
- *Output signal 4...20mA 2-wires / 0.1...5.1Vdc / 0.1...10.1Vdc / 0...5Vdc / 0...10Vdc / 1...5Vdc / 1...10Vdc*
- *Protection rating: IP65/IP67*
- *Wetted parts AISI 430F and 17-4PH*
- *Available with a variety of process connections, both standard and custom*

TK transmitters are based on the extensimetric thick film measuring principle. Thanks to highly stable electronic components, these transmitters can be used in applications requiring long-distance signal transmission or in smart control systems. TK pressure transmitters are designed mainly to measure pressure in oil, air, and hydraulic circuits. They can also be used in the technical and process measurement application as well as for compressors, presses and mobile hydraulic.

## TECHNICAL DATA

| **Output signal** | **VOLTAGE** | **CURRENT** |
|---|---|---|
| Accuracy (**1**) | H ± 0.25% FS typical (± 0.3% FS max)<br>M ± 0.5% FS typical (± 0.6% FS max) | |
| Measurement range | from 0...3 bar to 0...1000 bar; from -1...+1 bar to -1...+10bar | |
| Resolution | Infinite | |
| Overpressure (without degrading performance) (**2**) | See table | |
| Pressure containment (burst test) (**3**) | See table | |
| Pressure Media | Fluid compatible with Inox 17-4 PH/AISI 430F | |
| Body materials | Inox AISI 304 | |
| Power supply | **B/M/P/R** 10...30Vdc<br>**C/N/Q** 15...30Vdc | 10...30Vdc |
| Supply Sensitivity | < 0.0015% FS/V | |
| Output noise (RMS 10-400Hz) | < 0.05% FS | |
| 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 |
| Long term stability | < 0.2% FS/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) | ± 0.012% FS/°C typical (± 0.02% FS/°C max.) | |
| Response time (10...90%FS) | < 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/11ms according to IEC 60068-2-27 | |
| Vibrations | 20g max at 10-2000Hz according to IEC 60068-2-6 | |
| Ingress protection | sealed to IP65/IP66/IP67 | |
| Output short circuit and reverse polarity protection | YES | |

FS = Full Scale

**1** BFSL method (Best Fit Straight Line): includes combined effects of Non-Linearity, Hysteresis and Repeatability (acc. to IEC 62828-2)

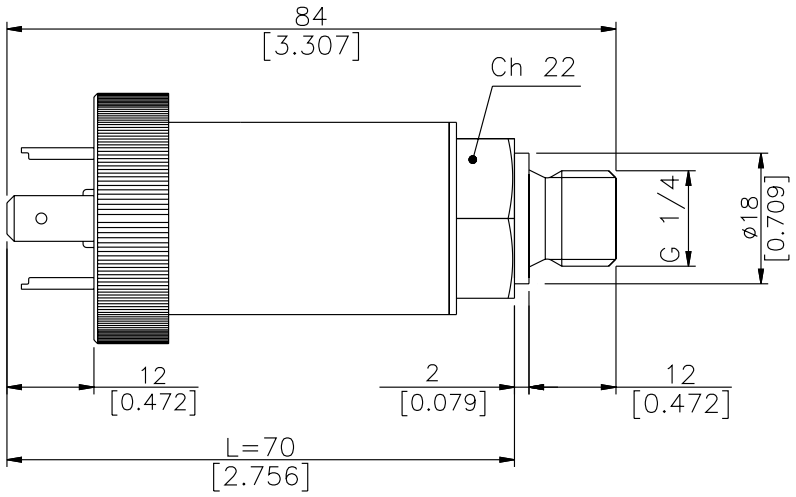
**2** tested for more than 1000 strokes with single duration < 2msec.

**3** tested for more than 100 strokes with single duration < 2msec.

| **MEASUR. RANGE (BAR)** | **-1/+1** | **-1/+2** | **-1/+3** | **-1/+5** | **-1/+10** | **3** | **4** | **5** | **6** | **7** | **10** | **16** | **20** | **25** | **30** | **40** | **50** | **60** | **100** | **160** | **200** | **250** | **350** | **400** | **500** | **600** | **700** | **1000** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Overpressure | 2 | 4 | 6 | 10 | 20 | 6 | 8 | 10 | 12 | 14 | 20 | 32 | 40 | 50 | 60 | 80 | 100 | 120 | 200 | 320 | 400 | 500 | 700 | 800 | 1000 | 1200 | 1200 | 1200 |
| Burst test | 12 | 12 | 12 | 20 | 40 | 12 | 16 | 20 | 24 | 28 | 40 | 64 | 80 | 100 | 120 | 160 | 200 | 240 | 400 | 640 | 800 | 1000 | 1200 | 1200 | 1200 | 1500 | 1500 | 1500 |

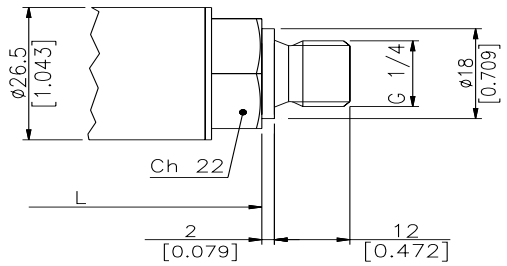
## INSTALLATION DRAWINGS

Dimensions: mm [inches]

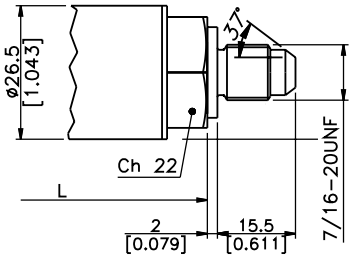



## PRESSURE CONNECTION

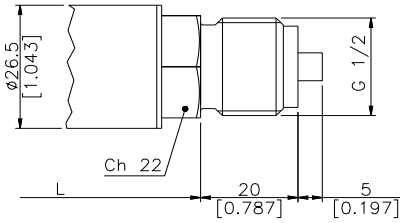
**(1) G 1/4 MALE (DIN 3852-A)**



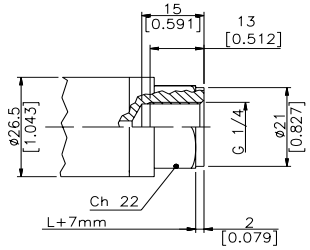

**(2) SAE 04 AS4395 - E**




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

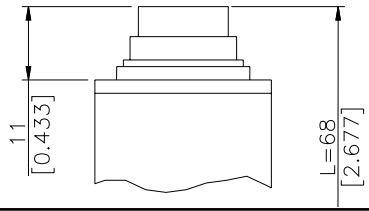



**(4) G 1/4 FEMALE**

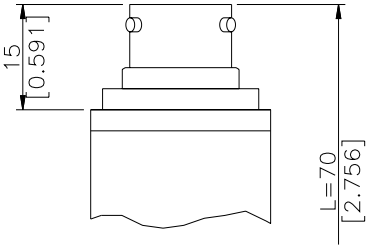



## ELECTRICAL CONNECTION

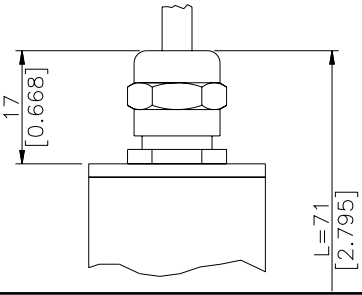
**P - 7 pole connector**



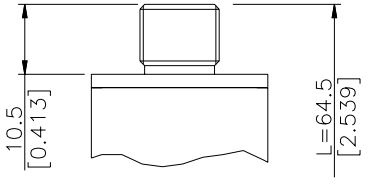

**V - 6 pole connector**



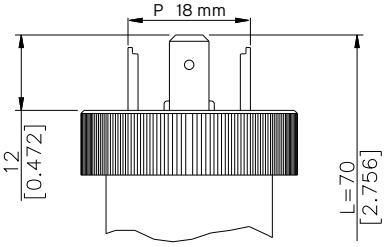

**F - 4 pole cable**



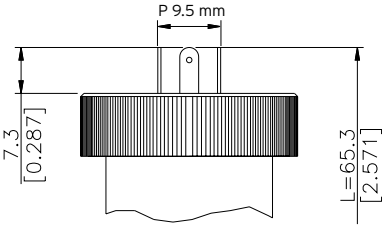

**Z - 4 pole connector M12 x 1**




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

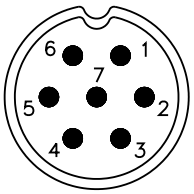



**M - 4 pole connector EN 175301-803C**



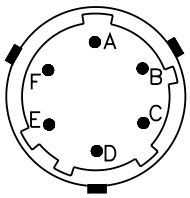
## ELECTRICAL CONNECTION - Connectors

**P - 7-pole connector M16x0.75**



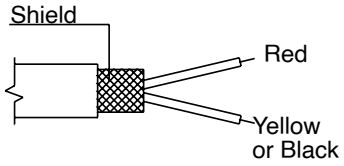

Protection IP67

**V - 6-pole bayonet connector**



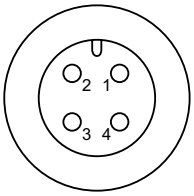

Protection IP66

**F - 2 pole cable**



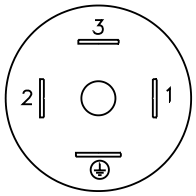

Shielded cable 2x0.25 - 2m. (output E)
Protection IP65

**Z - M12 x 1 connector**



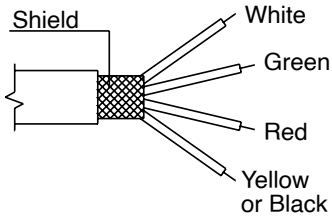

4 pole male connector
Protection IP67

**E - EN 175301-803A**
**M - EN 175301-803C**




4 pin type A
Protection IP65
4 pin type C
Protection IP65

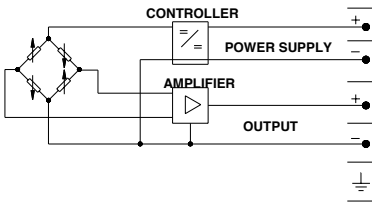
**F - 4 pole cable**




Shielded cable 4x0.25 - 2m
Protection IP65

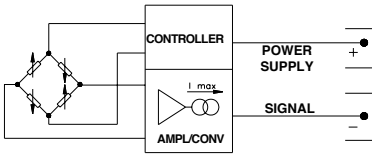
## ELECTRICAL CONNECTION - connection diagrams

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



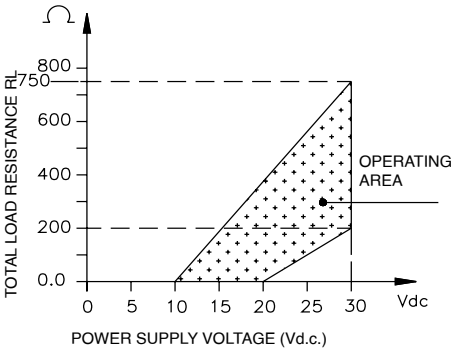

| | cod. V | cod. P | cod. F | cod. E/M | cod. Z |
|---|---|---|---|---|---|
| + | C | 1 | White | 3 | 3 |
| – | D | 2 | Green | 2 | 2 |
| + | A | 3 | Red | 1 | 1 |
| – | B | 4 | Yellow or Black | 2 | 2 |
| ⏚ | Case | Custodia | Shield | ⏚ | Custodia |

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 |
| | | | | | |
| ⏚ | Custodia | Custodia | Shield | ⏚ | Custodia |

LOAD DIAGRAM
(Current output)




## ACCESSORIES ON REQUEST

**Connectors Plugs**

**Connection E**
EN 175301-803 4 poles type A (P.18)
Prot. IP65 — **CON 006**

**Connection Z**
4 poles connector Prot. IP67 — **CON 293**

**Connection M**
EN 175301-803 4 poles type C (P.9.5)
Prot. IP65 — **CON 008**

**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 **TK** ☐ ☐ ☐ ☐☐☐☐ ☐ ☐ ☐

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

| PRESSURE CONNECTION | |
|---|---|
| **Standard** | |
| G 1/4 gas male (DIN 3852-A) | **1** |
| 7/16-20 UNF-2A male (SAE 4 per AS4395-E) | **2** |
| G 1/2A (DIN 16288) | **3** |
| **On request** | |
| G 1/4 gas female | **4** |
| 1/8-27 NPT female | **5** |
| 1/4 - 18 NPT female | **6** |
| 1/4 - 18 NPT male | **7** |
| M14 x 1.5 male | **8** |
| 1/8 - 27 NPT male | **9** |
| G 1/4 gas male (DIN 3852-E) | **E** |
| M12 x 1.5 male | **R** |
| 7/16-20 UNF-2A male (SAE 4 per J1926-2) (*) | **K** |
| 7/16-20 UNF-2A female (SAE 4) | **F** |

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

| ELECTRICAL CONNECTION | |
|---|---|
| **Standard** | |
| EN 175301-803 type A (P 18 mm) | **E** |
| Shielded cable | **F** |
| 4 pole connector M12 x 1 | **Z** |
| **On request** | |
| EN 175301-803 type C (P 9.5 mm) | **M** |
| 7 pole connector M16x0.75 | **P** |
| 6 pole bayonet connector | **V** |

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

| RESPONSE TIME | |
|---|---|
| **V** | Fast (< 1 msec) |

| ACCURCY | |
|---|---|
| **H** | ± 0.25% FS Typical |
| **M** | ± 0.5% FS Typical |

| MEASUREMENT RANGE | | | | | | |
|---|---|---|---|---|---|---|
| | **bar** | | **bar** | | **psi** |
| **N01U** | -1..+1 * | **B03D** | 0..30 | **V15U** | -15..+15 * |
| **N02U** | -1..+2 * | **B04D** | 0..40 | **V03D** | -15..+30 * |
| **N03U** | -1..+3 * | **B05D** | 0..50 | **V05D** | -15..+50 * |
| **N05U** | -1..+5 | **B06D** | 0..60 | **V75U** | -15..+75 |
| **N01D** | -1..+10 | **B01C** | 0..100 | **V01C** | -15..+100 |
| **B03U** | 0..3 | **B16D** | 0..160 | **P05D** | 0..50 |
| **B04U** | 0..4 | **B02C** | 0..200 | **P75U** | 0..75 |
| **B05U** | 0..5 | **B25D** | 0..250 | **P01C** | 0..100 |
| **B06U** | 0..6 | **B35D** | 0..350 | **P15D** | 0..150 |
| **B07U** | 0..7 | **B04C** | 0..400 | **P25D** | 0..250 |
| **B01D** | 0..10 | **B05C** | 0..500 | **P03C** | 0..300 |
| **B16U** | 0..16 | **B06C** | 0..600 | **P05C** | 0..500 |
| **B02D** | 0..20 | **B07C** | 0..700 | **P75D** | 0..750 |
| **B25U** | 0..25 | **B01M** | 0..1000 | **P01M** | 0..1000 |
| | | | | **P15C** | 0..1500 |
| | | | | **P25C** | 0..2500 |
| | | | | **P03M** | 0..3000 |
| | | | | **P05M** | 0..5000 |
| | | | | **P75C** | 0..7500 |
| | | | | **P10M** | 0..10000 |
| | | | | **P15M** | 0..15000 |

* only M class

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

**Es: TK - E - 1 - E - B04C - H - V**
Pressure transmitter TK with 4 to 20 mA output signal, G1/4 male pressure connection, EN 175301-803A connector, 0...400 bar pressure range, ± 0.25% FS accuracy, 1 msec 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

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

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