# GEFRAN

## TH
### FORCE TRANSDUCER FOR TENSION/COMPRESSION APPLICATIONS

### Main features

• Range of measurement: from 10 to 100 kN
• Accuracy class: 0,2%
• All stainless steel construction
• Corrosion resistant
• Internally generated calibration signal
• Grade of protection: IP65 (DIN 40050)

The TH series force transducers are ideal for systems that measure tension or compression force in industrial applications, where accuracy and reliability are important, even in harsh environments.

The disposition of the (8) strain gauges of the measurement bridges uses the deformation produced by the shear force of the applied load. It is thus possible to make accurate force transducers that are rugged and insensitive to lateral loads.

The transducer is machined from a solid block of stainless steel and contains no welds or joints.

The electrical circuit is protected by sealed formed stainless steel plates.

## TECHNICAL DATA

| | |
|---|---|
| **Accuracy** | |
| 0,2% | |
| **Nominal full scale load (Ln)** | |
| 10...100 kN | |
| **Nominal output at FSO** | |
| 2mV/V | |
| **Output tolerance at Ln** | |
| <± 1% FSO | |
| **Combined errors: Non linearity, Histeresis, Repeatibility** | |
| < ± 0,2% FSO | |
| **Creep (after 30 min. at Ln)** | |
| < ± 0,06% FSO | |
| **Zero load out of balance signal** | |
| < ± 1% FSO | |
| **Calibration signal *** | |
| 80%FSO ± 1% | |
| **Thermal drift in compensated range** | |
| Sensitivity:   < ± 0,02% FSO°C | |
| Zero:           < ± 0,02% FSO°C | |
| Calibration:  < ± 0,02% FSO°C | |
| **Nominal input resistance** | |
| 700 Ohm | |
| **Nominal output resistance** | |
| > 10 GOhm | |
| **Nominal supply voltage** | |
| 10 V | |
| **Maximum supply voltage** | |
| 18 V | |
| **Compensated temperature range** | |
| -20...+50°C | |
| **Maximum temperature range** | |
| -20...+60°C | |
| **Storage temperature range** | |
| -30...+80°C | |
| **Permitted static load** | |
| 130% Ln | |
| **Maximum applicable load** | |
| 150% Ln | |
| **Rupture load** | |
| > 300% Ln | |
| **Carico statico laterale max.** | |
| 150% Ln | |
| **Maximum elastic deformation at Ln** | |
| < 0,1 mm | |
| **Grade of protection (DIN40050)** | |
| IP65 | |
| **Electr. connections** | |
| Connector:     VPT02A10-6PT2 | |
| **Elastic element material** | |
| Stainless steel | |
| **Case material** | |
| Stainless steel | |

**\*** The exact value is indicated on the instrument nameplate.

## ELECTRICAL CONNECTIONS



| CONNECTOR OUTPUT | CABLE OUTPUT |
|---|---|
| A | Red |
| B | Black |
| C | White |
| D | Green |
| E – F | Blue-Orange |

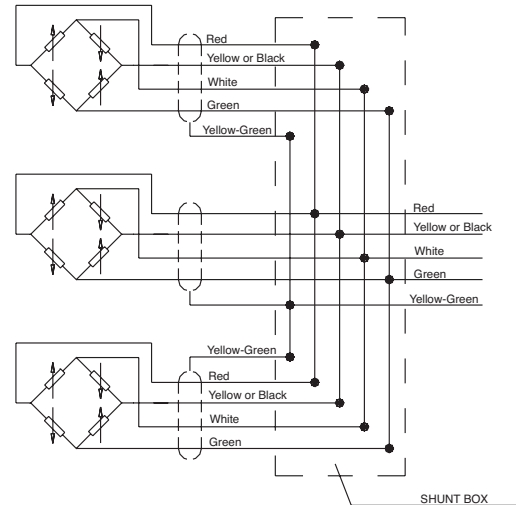SIGNAL +
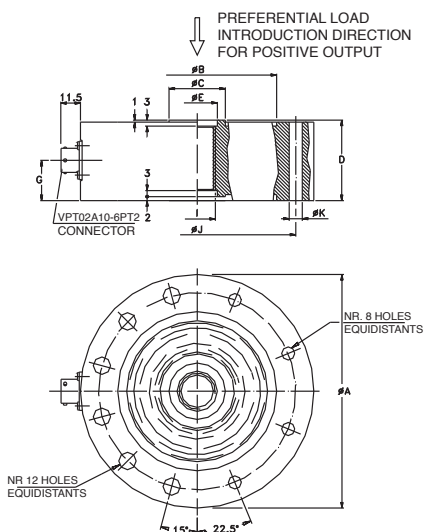SIGNAL -
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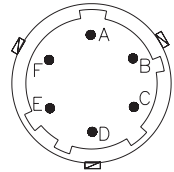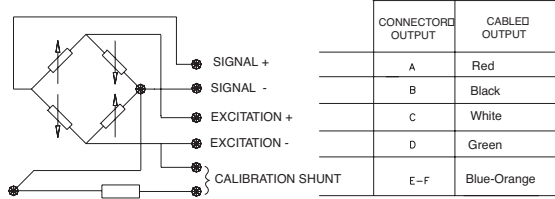
**VPT02A10-6PT2 CONNECTOR**

If the transducer is supplied complete with prewired connection cable, the colour code is that indicated in the table.

**Cells connected in parallel**



Red
Yellow or Black
White
Green
Yellow-Green

SHUNT BOX

In systems that use several cells, the parallel connection automatically sums the loads on each individual cell.
Using this method of measurement, the maximum load will be the sum of the loads on the individual cells and the sensitivity will be the average value of these cells.
It is important that the user ensures that no cell is stessed beyond its maximum rating under any load condition.

## MECHANICAL DIMENSIONS



PREFERENTIAL LOAD INTRODUCTION DIRECTION FOR POSITIVE OUTPUT

VPT02A10-6PT2 CONNECTOR

NR. 8 HOLES EQUIDISTANTS

NR 12 HOLES EQUIDISTANTS

15° 22.5°

| | Ln (kN) | | | | |
|---|---|---|---|---|---|
| | **10** | **20** | **30** | **50** | **100** |
| ø A | | 116 | | 154 | |
| ø B | | 79 | | 110 | |
| ø C | | 28 | | 59 | |
| D | | 40 | | 45 | |
| ø E | | 20 | | 35 | |
| I | | M18x1,5 | | M30x2 | |
| ø J | | 98 | | 130 | |
| ø K | | 6,5 | | 11 | |
| Screws nr. | | 8xM6 | | 12xM10 | |
| Nm* | | 20 | | 90 | |

Dimensions mm. (± 0,1)
* Recommended torque with UNI 5931 screws of resistance class 10.9 according to UNI 3740.

## CONVERSION TABLE

| Kg | N | Lb |
|---|---|---|
| 1 | 9.807 | 2.205 |
| 0.102 | 1 | 0.225 |
| 0.454 | 4.448 | 1 |

## OPTIONAL ACCESSORIES

| | |
|---|---|
| Female cable connector Grade of protection IP65 | **CON 300** |
| 6-pin connector with 8m (25ft) cable | **C08W** |
| 6-pin connector with 15m (50ft) cable | **C15W** |
| 6-pin connector with 25m (75ft) cable | **C25W** |
| 6-pin connector with 30m (100ft) cable | **C30W** |
| Other lengths | **consult factory** |

## ORDER CODE

Force transducer **TH** ☐ ☐

| MEASUREMENT RANGE (kN) | |
|---|---|
| 0 - 10 | **KN1D** |
| 0 - 20 | **KN2D** |
| 0 - 30 | **KN3D** |
| 0 - 50 | **KN5D** |
| 0 - 100 | **KN1C** |

If request, it is possible to supply models with non-standard mechanical and/or electrical features.

**EX: TH - KN5D**
TH force transducer, with measurement range 0 - 50 kN.

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

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