

Miniature Tension/Compression Force Transducer for small measuring ranges from 10 N

with electrical output



Description

This force transducer is widely used where it is necessary to measure directly in the force line. It is possible, for example, to measure the actual force in ropes and rods.

The force is applied to this force transducer via threaded bolts, which are located on each side of the cylindrical body. The force application has to be centrally, torsion and bending moments are to be avoided. The measuring range starts with a nominal load of 10 N.

Note

To prevent overload, it is advantageous to connect up the transducer electrically during installation and to monitor the measured value. In mounting the force transducer torsion and bending moments have to be avoided.

The force must be applied at the centre and without radial stress.

Features

- Ease of assembly
- Small Geometries
- Stainless steel version

Measuring ranges

- 0...10 N up to 0...50 kN

Applications

- Construction and apparatus
- Production lines
- Measurement and control facilities
- Special equipment and machinery construction
- Cable force measurements
- Test devices
- Manufacturing plant

Specific information

- High temperature version up to +150°C (optional)

Model: F2221

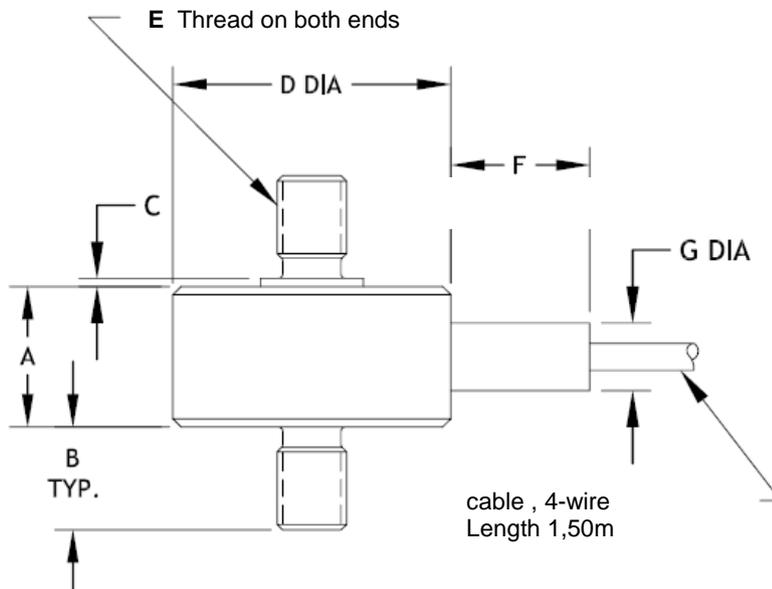
Technical data

| Model | F2221 | Options |
|---|---|--|
| Nominal load F_{nom} in N | 10; 20; 50; 100; 200; 500; 1000; 2000; 5000; 10000; 20000; 30000; 50000 | |
| Combined error (Tension or Compression) | $\pm 0,15\%$ of F.S. up to 1000 N $\pm 0,20\%$ of F.S. from 2000N | |
| Repeatability | $\pm 0,1\%$ of F.S.(10N) $\pm 0,05\%$ of F.S.(from 20N) | |
| Limit load | $150\% F_{nom}$ | |
| Breaking load | $>300\% F_{nom}$ | |
| Max. dynamic load | $\pm 70\% F_{nom}$ DIN 50 100 | |
| Nominal deflection | $< 0,1$ mm | |
| Nominal temperature range | +15 ... +70°C | +15 ... +120°C or ... +150°C other temperature ranges on request |
| Storage temperature range | -54 ... +120°C | |
| Reference temperature | 23°C | |
| Temperature effect -span -zero | $\leq \pm 0,05\%$ of F.S./10K $\leq \pm 0,05\%$ of F.S./10K | |
| Protection type (acc. to EN 60 529/ IEC 529) | IP 65 | |
| Insulation resistance | >5 G Ω bei 50V | |
| Analogue output - Output signal - Bridge resistance - Option - Power requirement - Electrical connection | 2 mV/V (10N with 1,5mV/V) 350 Ω Cable integrated amplifier 0 (4) ... 20 mA, 0 ... 10 V DC 5 V (bis 50N), 10 V (ab 100N) 12 ... 28 V DC for cable integrated amplifier Cable 1,5 m, open wires, 4-wire | |
| Material of measuring device | Edelstahl 17-4PH | |
| Weight | ca. 20g bis 250g je nach Nennkraft | |

of F.S. = full scale value

In case of order please note the requested nominal load

Dimensions



Electrical connection

| | |
|-------------|-------|
| Supply. (-) | black |
| Supply. (+) | red |
| Sign. (+) | white |
| Sign. (-) | green |

| Nominal load [N] | Dimensions in [mm] | | | | | | |
|-----------------------|----------------------|-------|-------|------|-----------|------|------|
| | $\varnothing D$ | A | B | C | E | F | G |
| 10 ... 50 | 19.1 | 11.43 | 6.35 | 1.27 | M4 x 0.7 | 7.87 | 4.83 |
| 100 ... 500 | 25.4 | 13.21 | 6.35 | 0.76 | M5 x 0.8 | 12.7 | 6.35 |
| 1000 ... 5000 | 25.4 | 13.21 | 9.65 | 0.76 | M6 x 1.0 | 12.7 | 6.35 |
| 10000 | 25.4 | 18.3 | 12.7 | 0.76 | M10 x 1.5 | 12.7 | 6.35 |
| 20000 | 31.8 | 23.9 | 16.0 | 0.76 | M12 x 1.5 | 12.7 | 9.65 |
| 30000 ... 50000 | 35.1 | 27.9 | 22.35 | 0.76 | M20 x 1.5 | 12.7 | 9.65 |

Subject to technical changes