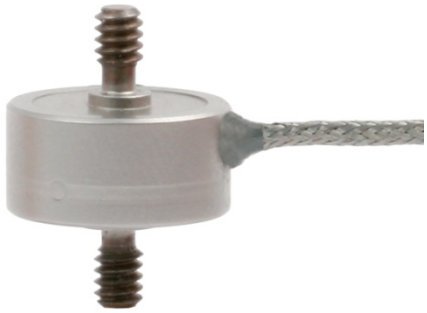
Miniature Tension/Compression Force Transducer for small measuring ranges from 10 N

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 centrically, 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 +250°C (optional)

Model: F2221

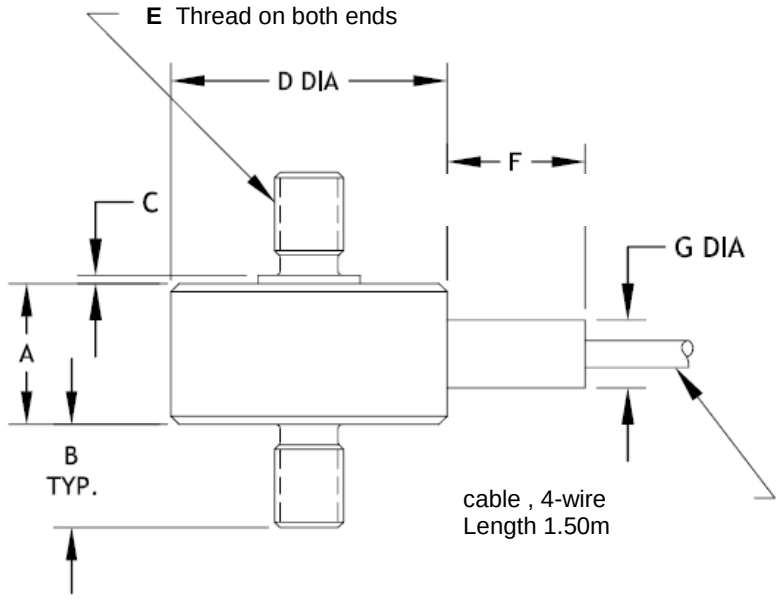
Technical data

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)	±0.15% of F.S.up to 1000N ±0.20% of F.S. from 2000N	
Repeatability	±0.1% of F.S.(10N) ±0.05% of F.S.(from 20N)	
Limit load	150% F_{nom}	
Breaking load	>300% F_{nom}	
Max. dynamic load	±70% F_{nom} DIN 50 100	
Nominal deflection	< 0.1 mm	
Nominal temperature range	+15 ... +70°C	+15 ... +120°C or … +250°C other temperature ranges on request
Storage temperature range	-54 ... +120°C	
Reference temperature	23°C	
Temperature effect -span -zero	≤±0.05% of F.S./10K ≤±0.05% of F.S./10K	
Protection type (acc. to EN 60 529/ IEC 529)	IP 65	
Insulation resistance	>5 GΩ bei 50V	
Analoque 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 (up to 50N), 10 V (from 100N) 12 … 28 V DC for cable integrated amplifier Cable	
Material of measuring device	Stainless steel 17-4PH	
Weight	~ 20 g up to 250 g depends on nominal load	

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]						
	øD	A	B	C	E	F	G
10 … 50*	19.1	11.43±0.8	6.35	1.5 max	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 x1.5	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

* Cable: Length ~75 cm, 5 con, braided shield, 4 twisted PTFE conductors, length ~50 cm

Subject to technical changes