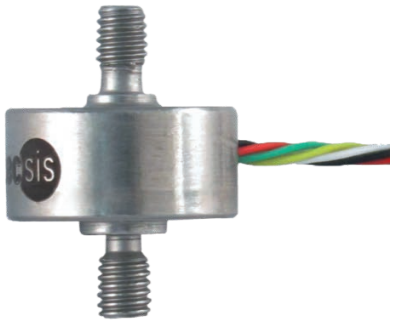
Miniature tension/compression force transducer
For small measuring ranges from 1.5 N
Model F2220

Applications

- Construction and apparatus
- Production lines, manufacturing plant
- Measurement and control facilities
- Special equipment and machinery construction
- Cable force measurements

Special features

- Measuring ranges 0 … 1.5 N up to 0 ... 5,000 N
- Ease of assembly
- Small geometries
- Stainless steel version



Miniature tension/compression force transducer, model F2220

Description

Miniature tension/compression force transducers are designed for static and dynamic measurement tasks in the direct flux of force. They determine the tension and compression forces in a wide scope of applications. It is possible, for example, to measure the actual force in ropes and rods.

The force is applied to this tension/compression force transducers via threaded bolts, which are located on each side of the cylindrical body.

The force transducers is available from a rated force of 1.5 N.

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

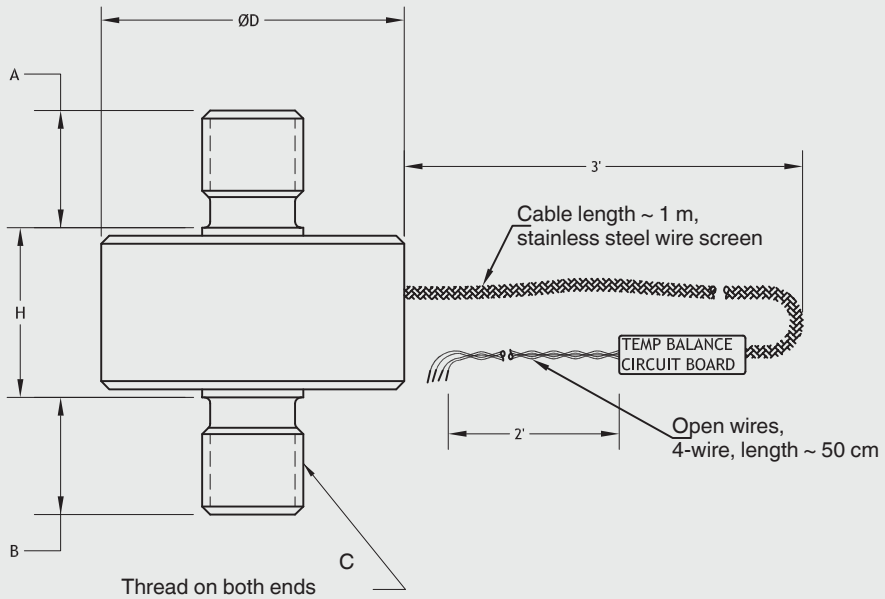
The force must be applied axial to the centre. Torsion and bending moments must be avoided.

Option
- High temperature version up to 250 °C
- Cable amplifier 4 ... 20 mA or DC 0 ... 10 V output
- Other cable length

Specifications in accordance with VDI/VDE/DKD 2638

Model F2220	
Rated force F_{nom} N	1.50 / 2.50 / 5 / 10 / 20 / 50 / 100 / 200 / 500 / 1,000 / 2,000 / 5,000
Relative linearity error d_{lin} ■ Tension or compression	± 0.5 % F_{nom}
Relative creep, 30 min.	< ±0.1 % F_{nom}
Relative reversibility error v	±0.5 % F_{nom}
Relative deviation of zero signal $d_{S, 0}$	±2 % F_{nom}
Relative repeatability error in unchainged mounting position b_{rg}	±0.1 % F_{nom}
Temperature effect on zero signal TK_0	< ±0.2 %/10 K
Temperature effect on characteristic value TK_C	< ±0.4 %/10 K
Force limit F_L	150 % F_{nom}
Breaking force F_B	> 300 % F_{nom}
Permissible oscillation stress acc. to DIN 50100 F_{rb}	70 % F_{nom}
Rated displacement s_{nom}	< 0.1 mm
Material	Stainless steel
Rated temperature range $B_{T, nom}$	15 … 70 °C (optional 15 ... 120 °C or 15 … 250 °C) Others on request
Operating temperature range $B_{T, G}$	-54 … +121 °C
Output signal (rated output) C_{nom}	2.0 mV/V (up to 5 N: 15 mV/V, from 10 N:15 mV/V)
Input-/output resistance R_e/R_a	350 Ω (up to 5 N: 500 Ω)
Insulation resistance	> 2 GΩ
Electrical connection	Cable 1.5 m, open wires, 4-wire
Supply voltage ■ Standard ■ Option	 DC 2 … 5 V (max. 5 V) DC 12 … 28 V (for optional integrated or cable amplifier mA/V) Integrated or cable amplifier 0(4) … 20 mA DC 0 … 10 V
Protection (acc. to IEC/EN 60529)	IP65
Weight	5 g up to 30 g depending on rated force
Calibration (standard)	Positive in tension

Dimensions

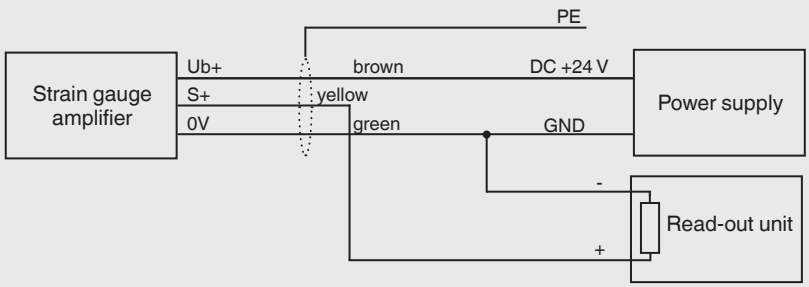


Rated force in N	Dimensions in mm				
	ØD	H	A	B	C
1.5 / 2.5 / 5	12.7	7.4	4.8	4.6	M3 x 0.5
10 / 20 / 50 / 100 / 200 / 500	12.7	7.4	4.8	4.6	
1,000 / 2,000 / 5,000	19.1	9.7	7.9	7.9	M6 x 1.0

Pin assignment

Electrical connection	
Excitation voltage (+)	Red
Excitation voltage (-)	Black
Signal (+)	White
Signal (-)	Green

Pin assignment for integrated amplifier or cable amplifier



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