

Miniature compression force transducer

For small measurement ranges, 0...0.5 N up to 0...5,000 N

Model F1222

Applications

- Construction of plant and apparatus
- Measurement and control plant
- Test benches
- Press in forces and joining forces monitoring

Special features

- Measurement ranges 0...0.5 N up to 0...5,000 N
- For compression measurements
- Ease of force input, easy installation
- Compact and small dimensions, low installation height
- Protection class IP65
- Relative linearity error 1 % F_{nom}



Description

The miniature compression force transducers are specially designed for small installation spaces. They are used to determine the compression forces in a wide range of applications and are suitable for static and dynamic measurement tasks eg. in laboratories and test field.

The spherical calotte (spherical load application button) allows a very simple force introduction. The usual mounting position of the force transducer is horizontal or vertical. The force transducer is splash-proof and works reliably even under harsh operating conditions.

Note

In order to avoid overloading, it is advantageous to connect the force transducers electrically during installation and to monitor the measured value. The force transducers are to be mounted on a level, grinded and sufficiently hard surface. The force is applied vertically to the force transducer axis at the spherical calotte.

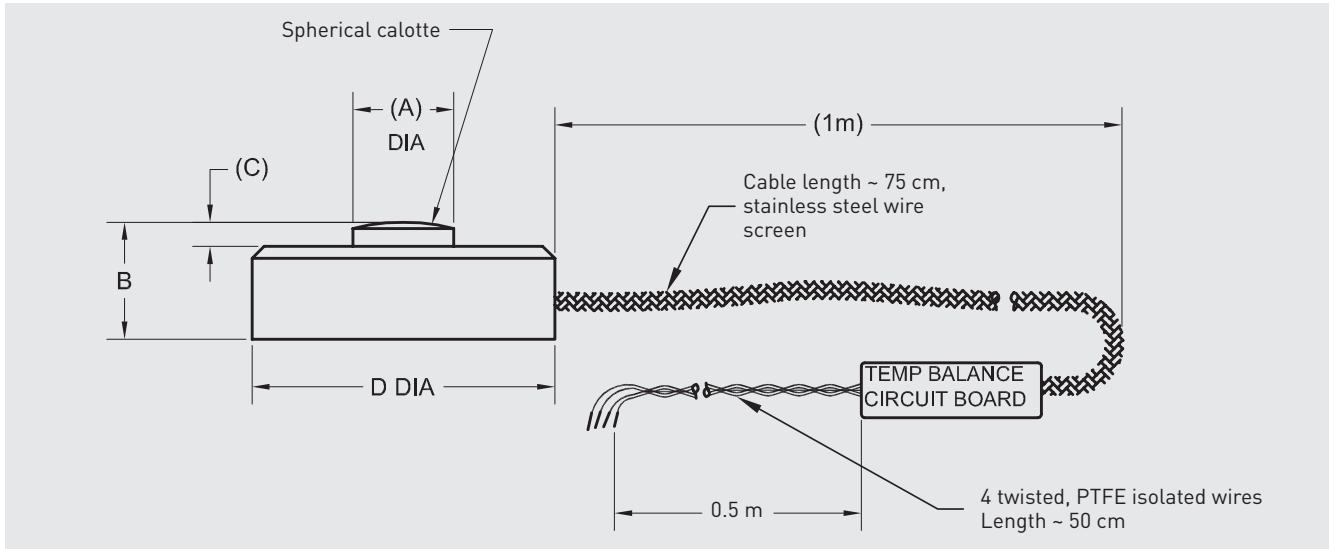
Options

- Integrated overload protection
- High temperature version with extended nominal temperature range
- Cable amplifier with output 4...20 mA or 0...10 V
- Other cable lengths

Specifications in accordance with VDI/VDE/DKD 2638

Model series	Symbol	Unit	F1222						
Measurement range									
Rated force	F_{nom}	N	0,5	1,5	2,5	5	10	20	50
			100	200	500	1,000	2,000	5,000	
Accuracy and stability									
Relative linearity error	d_{lin}	$x\%F_{nom}$	± 1						
Relative reversibility error	v	$x\%F_{nom}$	± 0.5						
Relative repeatability error in unchanged mounting position	b_{rg}	$x\%F_{nom}$	± 0.1						
Temperature effect on zero signal	TK_0	$\%/10\text{ K}$	$\leq \pm 0.2$						
Temperature effect on characteristic value	TK_C	$\%/10\text{ K}$	$\leq \pm 0.1$						
Mechanical characteristics									
Force limit	F_L	$x\%F_{nom}$	150						
Breaking force	F_B	$x\%F_{nom}$	> 300						
Permissible oscillation stress acc. to DIN 50100	F_{rb}	$x\%F_{nom}$	± 70						
Rated displacement	s_{nom}	mm	< 0.015						
Material			Stainless steel 17-4 PH						
Temperature ranges									
Rated temperature range	$B_{T, nom}$	$^{\circ}\text{C}$	15...70						
Operating temperature range	$B_{T, G}$	$^{\circ}\text{C}$	-54...120						
Reference temperature	T_{ref}	$^{\circ}\text{C}$	23						
Electrical characteristics									
Output signal (rated output)	C_{nom}	mV/V	10 mV/V/N (0.5 up to 1.5 N) 10 mV/V (2.5 up to 5 N) 1.0 mV/V (10 N) 2.0 mV/V (20 N up to 5 kN)						
Relative deviation of zero signal	$d_{S, 0}$	$x\%F_{nom}$	± 2						
Input-/output resistance	R_e/R_a	Ω	350 (up to 5 N: 500 semiconductor strain gauge)						
Option		mA V	Cable amplifier 0(4)...20 DC 0...10						
Rated range of excitation voltage	$B_{U, nom}$	V	5 (max. 5)						
Supply voltage			DC 12...28 (optional cable amplifier mA/V)						
Electrical connection			Cable 1.5 m, open wires, 4-wire, shielded						
Insulation resistance		$\text{G}\Omega$	> 5 (50 V)						
General data									
Protection (acc. to EN/IEC 60529)			IP65						
Weight			1 up to 10 (9 up to 18 incl. cable) depending on nominal load						

Dimensions in mm



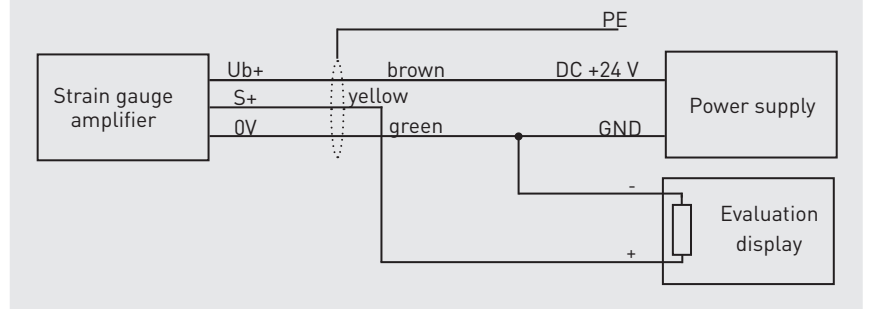
Rated force in N	Dimensions in mm			
	øD	øA	B	C
0.5/1.5/2.5/5	9.7	2.3	3.3	0.5
10/20/50/100/200				
500/1,000	12.7	3.0	3.8	
2,000/5,000	19.1	6.4	6.4	

Pin assignment

Electrical connection

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

Pin assignment for cable amplifier



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 We reserve the right to make modifications to the specifications and materials.