

# 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<sub>nom</sub>

## 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 ouput 4...20 mA or 0...10 V
- Other cable lenghts

# Specifications in accordance with VDI/VDE/DKD 2638

Model series	Symbol	Unit	F1222						
Measurement range									
Rated force	F <sub>nom</sub>	Ν	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 <sub>lin</sub>	x%F <sub>nom</sub>	±1						
Relative reversibility error	v	x%F <sub>nom</sub>	±0.5						
Relative repeatability error in unchanged mounting position	b <sub>rg</sub>	x%F <sub>nom</sub>	±0.1						
Temperature effect on zero signal	TK <sub>0</sub>	%/10 K	≤±0.2						
Temperature effect on characteristic value	тк <sub>с</sub>	%/10 K	≤ ±0.1						
Mechanical characteristics									
Force limit	FL	x%F <sub>nom</sub>	150						
Breaking force	F <sub>B</sub>	x%F <sub>nom</sub>	> 300						
Permissible oscillation stress acc. to DIN 50100	F <sub>rb</sub>	x%F <sub>nom</sub>	±70						
Rated displacement	s <sub>nom</sub>	mm	< 0.015						
Material			Stainles	s steel 17	-4 PH				
Temperature ranges									
Rated temperature range	B <sub>T, nom</sub>	°C	1570						
Operating temperature range	B <sub>T, G</sub>	°C	-54120						
Reference temperature	T <sub>ref</sub>	°C	23						
Electrical characteristics									
Output signal (rated output)	C <sub>nom</sub>	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 <sub>S, 0</sub>	x%F <sub>nom</sub>	± 2						
Input-/output resistance	R <sub>e</sub> /R <sub>a</sub>	Ω	350 (up to 5 N: 500 semiconductor strain gauge)						
Option		mA V	Cable amplifier 0(4)20 DC 010						
Rated range of excitation voltage	B <sub>U, nom</sub>	٧	5 (max. 5)						
Supply voltage			DC 122	28 ( option	nal cable a	mplifier mA	/V]		
Electrical connection			Cable 1.5 m, open wires, 4-wire, shielded						
Insulation resistance		<b>G</b> Ω	> 5 (50 V)						
General data									
Protection (acc. to EN/IEC 60529)			IP65						
Weight			1 upt to 10 (9 up to 18 incl. cable) depending on nominal load						

## **Dimensions in mm**



Rated force	Dimensions in mm					
in N	øD	øA	В	C		
0.5/1.5/2.5/5	0.7	2.3	3.3			
10/20/50/100/200	7.7			0.5		
500/1,000	12.7	3.0	3.8	0.5		
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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The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

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tecsis GmbH Carl-Legien-Str. 40-44 63073 Offenbach / Main Germany Phone +49 69 5806-0 Fax +49 69 5806-7788 info@tecsis.com www.tecsis.com

