3-Axis Force Sensor K3D35 500mN

Item number: 11683

Highlights

- miniature 3-axis force sensor
- versions from 500mN
- compact design

The K3D35 3-axis sensor is suitable for force measurement in three perpendicular axes. The K3D35 miniature force sensor is characterized by a particularly compact design with a footprint of Ø35mm and a low overall height of only 28mm.
Despite the small measuring range of 0.5 N, the sensor needs a stiffness equivalent to a sensor for 10 N.

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Stand: 16.12.2024

Technical Data

Basic Data		Unit
Type	3-axis force sensor	
Force direction	Tension/Compression	
Rated force Fx	500	mN
Rated force Fy	500	mN
Rated force Fz	500	mN
Force introduction	Internal thread	
Dimension 1	4x Internal thread M3, 2x fitting hole Ø2mm E9	
Sensor Fastening	Internal thread	
Dimension 2	4x Internal thread M2,5, 1x fitting hole Ø2mm E9	
Operating force	150	%FS
Lateral force limit	150	%FS
Material	alluminum-alloy	
Natural frequency fx	223.27	Hz
Dimensions	Ø35 x 28	mm x mm
Variants	500mN...10N	

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Electrical Data		Unit
Characteristic value range from	0.5	mV/V
Characteristic value range to	1	mV/V
Zero signal tolerance	0.1	mV/V
Rated range of excitation voltage from	2.5	V
Rated range of excitation voltage to	5	V
Operating range of excitation voltage from	1	V
Operating range of excitation voltage to	10	V
Input resistance x-axis	350	Ohm
Output resistance x-axis	350	Ohm
Input resistance y-axis	350	Ohm
Output resistance y-axis	350	Ohm
Input resistance z-axis	350	Ohm
Output resistance z-axis	350	Ohm
Tolerance input resistance	5	Ohm
Tolerance output resistance	5	Ohm

Eccentricity and Crosstalk		Unit
Influence of eccentric load to FS	1	%FS/10mm
Crosstalk from x to y at rated load	1	%FS
Crosstalk from y to x at rated load	1	%FS
Crosstalk from z to x/y at rated load	1	%FS
Crosstalk from x/y to z at rated load	1	%FS

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Accuracy Data		Unit
Accuracy class	0,5	
Relative linearity error	0.2	%FS
Relative zero signal hysteresis	0.05	%FS
Temperature effect on zero signal	1	%FS / K
Temperature effect on characteristic value	0.1	%RD / K
Relative creep	0.5	%FS

Environmental Data		Unit
Rated temperature range from	15	°C
Rated temperature range to	30	°C
Operating temperature range from	10	°C
Operating temperature range to	40	°C
Storage temperature range from	10	°C
Storage temperature range to	40	°C

- Abbreviations: RD: Actual value ("Reading"); FS: Full Scale;
- For the electrical data alternatively: 1000±200 Ohm possible
- The exact characteristic value is shown in the test report
- Note: The natural frequency only takes into account the load-conducting sensor parts with their specific geometries, masses and stiffnesses, but not other sensor components. The natural frequency is an indication of the dynamic design of the built environment for sensor integration and changes in frequency and direction as soon as additional masses are mounted on the sensor.

Pin Assignment

Channel	Symbol	Description	Wire color	PIN
1	+Us	positive bridge supply	brown	
	-Us	negative bridge supply	white	
	+Ud	positive bridge output	green	
	-Ud	negative bridge output	yellow	
2	+Us	positive bridge supply	pink	
	-Us	negative bridge supply	grey	
	+Ud	positive bridge output	blue	
	-Ud	negative bridge output	red	
3	+Us	positive bridge supply	purple	
	-Us	negative bridge supply	black	
	+Ud	positive bridge output	orange	
	-Ud	negative bridge output	transparent	

Pressure load: positive output signal.Shield- transparent.

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