

3-Axis Force Sensor K3D40 2N

Item number: 3108



The 3-axis sensor K3D40 is suitable for measuring force on three mutually perpendicular axes.

It is available for 2 N or 10 N in all three axes, and can optionally be manufactured for other measurement ranges.

This model stands out for its particularly compact size with a footprint of only 40 mm x 40 mm and a low overall height of only 20 mm.

Technical Data

Basic Data		Unit
Type	3-axis force sensor	
Force direction	Tension/Compression	
Rated force Fx	2	N
Rated force Fy	2	N
Rated force Fz	2	N
Force introduction	Internal thread	
Dimension 1	M3x0,5	
Sensor Fastening	Internal thread	
Dimension 2	M3x0,5	
Operating force	200	%FS
Rated displacement	0.15	mm
Material	aluminum-alloy	
Natural frequency fx	500	Hz
Dimensions	40 x 40 x 20	
Height	20	mm
Length or Diameter	40	mm
Torque limit	5	Nm
Bending moment limit	5	Nm
Breaking force	600	%
Variants	2N... 50N	

Electrical Data		Unit
Rated output x-axis	0.5	mV/V
Rated output y-axis	0.5	mV/V
Rated output z-axis	0.5	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
Insulation resistance	5	GOhm
Tolerance input resistance	5	Ohm
Tolerance output resistance	5	Ohm

Eccentricity and Crosstalk		Unit
Influence of eccentric load to FS	0.5	%FS / 2Nm
Crosstalk from x to y at rated load	0.5	%FS
Crosstalk from y to x at rated load	0.5	%FS
Crosstalk from z to x/y at rated load	1	%FS
Crosstalk from x/y to z at rated load	1	%FS

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

Environmental Data		Unit
Rated temperature range from	-20	°C
Rated temperature range to	60	°C
Operating temperature range from	-20	°C
Operating temperature range to	70	°C
Storage temperature range from	-20	°C
Storage temperature range to	70	°C
Environmental protection	IP65	

¹⁾ The exact nominal sensitivity is indicated in the test report.

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	