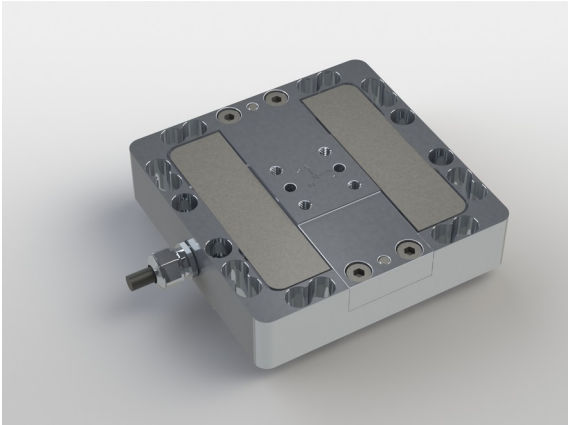


3-Axis Force Sensor K3D120 50N

Item number: 2298



The 3-axis force sensor K3D120 is suitable for measuring force in three mutually perpendicular axes. It is ready for 50 N to 5 kN in all three axes and can optionally be manufactured in other measurement ranges. The force sensor is made of high-strength aluminium alloy up to the 1 kN measurement range. From 1 kN onwards, the force sensor is made from the material stainless steel 1.4542 (option "VA"). It stands out due to its particularly compact structure, with an area of 120mm x 120mm and a low total height of just 30mm. Example application areas include force measurement in production processes, force control in handling machines, force measurement in assembly processes, and three-dimensional load measurement.

Technical Data

Basic Data		Unit
Type	3-axis force sensor	
Force direction	Tension/Compression	
Rated force Fx	50	N
Rated force Fy	50	N
Rated force Fz	50	N
Force introduction	Internal thread	
Dimension 1	4xM6	
Sensor Fastening	Through-hole	
Dimension 2	4xØ6,6	
Operating force	150	%FS
Rated displacement	0.06	mm
Material	aluminum-alloy	
Natural frequency fx	1	kHz
Dimensions	120 x 120 x 30	mm
Height	30	mm
Length or Diameter	120	mm
Torque limit	100	Nm
Bending moment limit	100	Nm
Variants	50N... 5kN	

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	0.05	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	780	Ohm
ausgangswiderstandXAchse	700	Ohm
Input resistance y-axis	780	Ohm
ausgangswiderstandYAchse	700	Ohm
Input resistance z-axis	780	Ohm
ausgangswiderstandZAchse	700	Ohm
Insulation resistance	5	GOhm
Tolerance input resistance	10	Ohm
Tolerance output resistance	5	Ohm

Eccentricity and Crosstalk		Unit
Allowed torque according of eccentric load	100	Nm
Influence of eccentric load to FS	1	%FS / 100Nm
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	2	%FS

Accuracy Data		Unit
Accuracy class	0,5	
Relative linearity error	0.2	%FS
Temperature effect on zero signal	0.02	%FS/K
Temperature effect on characteristic value	0.01	%RD/K
Relative creep	0.1	%FS

Environmental Data		Unit
Rated temperature range from	-10	°C
Rated temperature range to	70	°C
Operating temperature range from	-10	°C
Operating temperature range to	85	°C
Storage temperature range from	-10	°C
Storage temperature range to	85	°C
Environmental protection	IP66	

Abbreviation: RD: „Reading“; FS: „Full Scale“1) 0,5mV/V bis 50N; 1mV/V ab 100N. The exact nominal sensitivity is indicated in the test report

Pin Assignment

Channel	Symbol	Description	Wire color	PIN
X-Axis	+Us	sensor supply	brown	2
	-Us	sensor supply	white	1
	+Ud	bridge output	green	3
	-Ud	bridge output	yellow	4
Y-Axis	+Us	sensor supply	pink	6
	-Us	sensor supply	grey	5
	+Ud	bridge output	blue	7
	-Ud	bridge output	red	8
Z-Axis	+Us	sensor supply	purple	10
	-Us	sensor supply	black	9
	+Ud	bridge output	grey / pink	11
	-Ud	bridge output	red / blue	12

Pressure load: positive output signal. Shield- transparent.