



Description

The K3A 3-axis sensor is designed for measuring force in three mutually perpendicular axes. This product group has a wide measurement ranges for the forces.

The K3A S3-Axis Force Sensors are developed for the following applications:

1. Robotics,
2. Medical technology,
3. Measurements in automation technology,
4. Mounting and Assembling of Parts in Production Lines,
5. 6-Axis Force/Torque Platforms consisting of 4x K3A Sensors,
6. Research and Testing.

The calibration document contains the individual calibration factors and crosstalk data of the sensor.

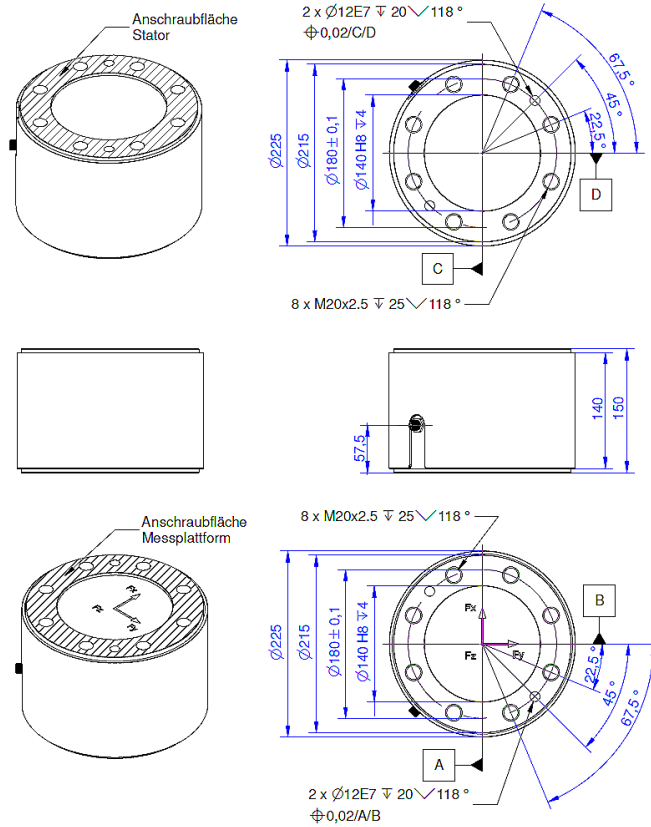
The crosstalk optionally can be minimized by application of an additional error compensation matrix.

The K3A sensors can be operated without additional compensation matrix.

During the application, please take care to ensure that the maximum bending moments are not exceeded.

The lever arms are calculated from the sensor origin, which is in the center of the mounting surface (on the top surface).

Dimensions



Technical Data

Force sensor

Type	3-axis force sensor
Force direction	Tension / Compression
Rated force Fx	100 kN
Rated force Fy	100 kN
Rated force Fz	200 kN
Force introduction	Inner thread
Dimension 1	8xM20x2,5
Sensor Fastening	Inner thread
Dimension 2	8xM20x2,5
Operating force	150 %FS
Material	Tool steel
Height	150 mm
Length or Diameter	225 mm
Torque limit	40 kNm
Bending moment limit	10 kNm

Precision

Accuracy class	0,2%
Relative linearity error	0.2 %FS
Temperature effect on zero signal	0.01 %FS/K
Temperature effect on characteristic value	0.01 %RD/K
Relative creep	0.01 %FS

Connection Data

Connection type	Connector
Name of the connection	integrierter Rundsteckverbinder UP13, 27-polig, male

Eccentricity and Crosstalk

Crosstalk from x to y at rated load	2 %FS
Crosstalk from y to x at rated load	2 %FS
Crosstalk from z to x/y at rated load	1 %FS
Crosstalk from x/y to z at rated load	1

Temperature

Rated temperature range f	-10 ... 70 °C
Operating temperature range f	-10 ... 85 °C

Electrical Data

Rated output x-axis	1.5 mV/V / FS
Rated output y-axis	1.5 mV/V / FS
Rated output z-axis	0.8 mV/V / FS
Zero signal	0.05 mV/V
Rated range of excitation voltage f	2.5 ... 5 V



Operating range of excitation voltage f	1 ... 10 V
Input resistance x-axis	700 Ohm
Output resistance x-axis	700 Ohm
Input resistance y-axis	700 Ohm
Output resistance y-axis	700 Ohm
Input resistance z-axis	1400 Ohm
Output resistance z-axis	1400 Ohm
Insulation resistance	5 GOhm

Abbreviation: RD: „Reading“; FS: „Full Scale“;
The exact nominal sensitivity is indicated in the test report;

Pin Configuration

Channel	Symbol	Description	Wire colour	PIN
1 and 7	+Us	positive bridge supply	yellow	14
	-Us	negative bridge supply	green	13
	+Ud	positive bridge output	white	1
	-Ud	negative bridge output	brown	5
2 and 8	+Us	positive bridge supply	gray	15
	-Us	negative bridge supply	black	16
	+Ud	positive bridge output	red	7
	-Ud	negative bridge output	pink	6
3 and 9	+Us	positive bridge supply	brown-blue	23
	-Us	negative bridge supply	white-red	24
	+Ud	positive bridge output	brown-red	12
	-Ud	negative bridge output	white-pink	4
4 and 10	+Us	positive bridge supply	white-yellow	13
	-Us	negative bridge supply	yellow-brown	20
	+Ud	positive bridge output	brown-green	9
	-Ud	negative bridge output	white-green	3
5 and 11	+Us	positive bridge supply	white-gray	21
	-Us	negative bridge supply	white-blue	22
	+Ud	positive bridge output	gray-brown	10
	-Ud	negative bridge output	pink-brown	11
6 and 12	+Us	positive bridge supply	gray-pink	18
	-Us	negative bridge supply	purple	17
	+Ud	positive bridge output	red-blue	8
	-Ud	negative bridge output	blue	2
-	shield		transparent	





Shield: connected with sensor housing;

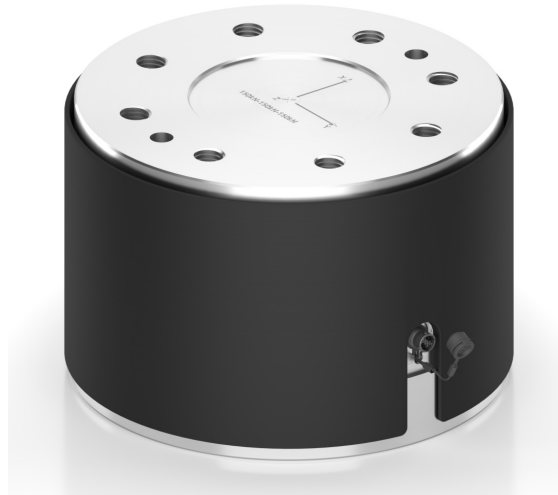
Plug connector 1: channel 1 - 6

Plug connector 2: channel 7 - 12



accessories

Description	Description
 <p>GSV-8DS</p>	8-channel amplifier with USB port, analog output, UART interface. Other versions GSV-8AS CAN with Canbus and GSV-8AS EC with EtherCAT fieldbus.
 <p>Connection cable UP13/27p/f/90°-D- Sub44HD/m</p>	Connection cable for connecting the K6D sensor to an 8-channel measuring amplifier GSV-8DS SubD44HD
 <p>Calibration Certificate kn/200/5/K3D</p>	Factory calibration certificate for force from 21 kN to 200 kN in accordance with DIN EN ISO / IEC 17025 for test materials monitoring according to DIN ISO 9001: 2008 with 5 load levels and 3 series of measurements.
 <p>Calibration Certificate kn/1000/5/K3D</p>	Factory calibration certificate for force from 201 kN to 1000 MN in accordance with DIN EN ISO / IEC 17025 for test materials monitoring according to DIN ISO 9001: 2008 with 5 load levels and 3 series of measurements.



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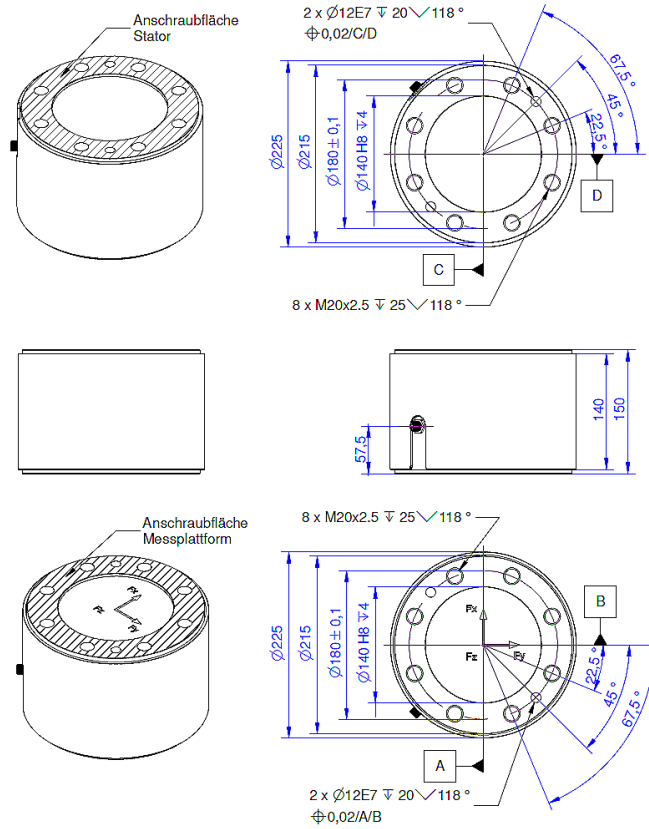
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Dimensions



Technical Data

Force sensor

Type	3-axis force sensor
Force direction	Tension / Compression
Rated force Fx	200 kN
Rated force Fy	200 kN
Rated force Fz	400 kN
Force introduction	Inner thread
Dimension 1	8xM20x2,5
Sensor Fastening	Inner thread
Dimension 2	8xM20x2,5
Operating force	150 %FS
Material	Tool steel
Height	150 mm
Length or Diameter	225 mm
Torque limit	60 kNm
Bending moment limit	20 kNm

Precision

Accuracy class	0,2%
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