



Description

The K6D225 multi-axis sensor is designed for measuring force and torque in three mutually perpendicular axes.

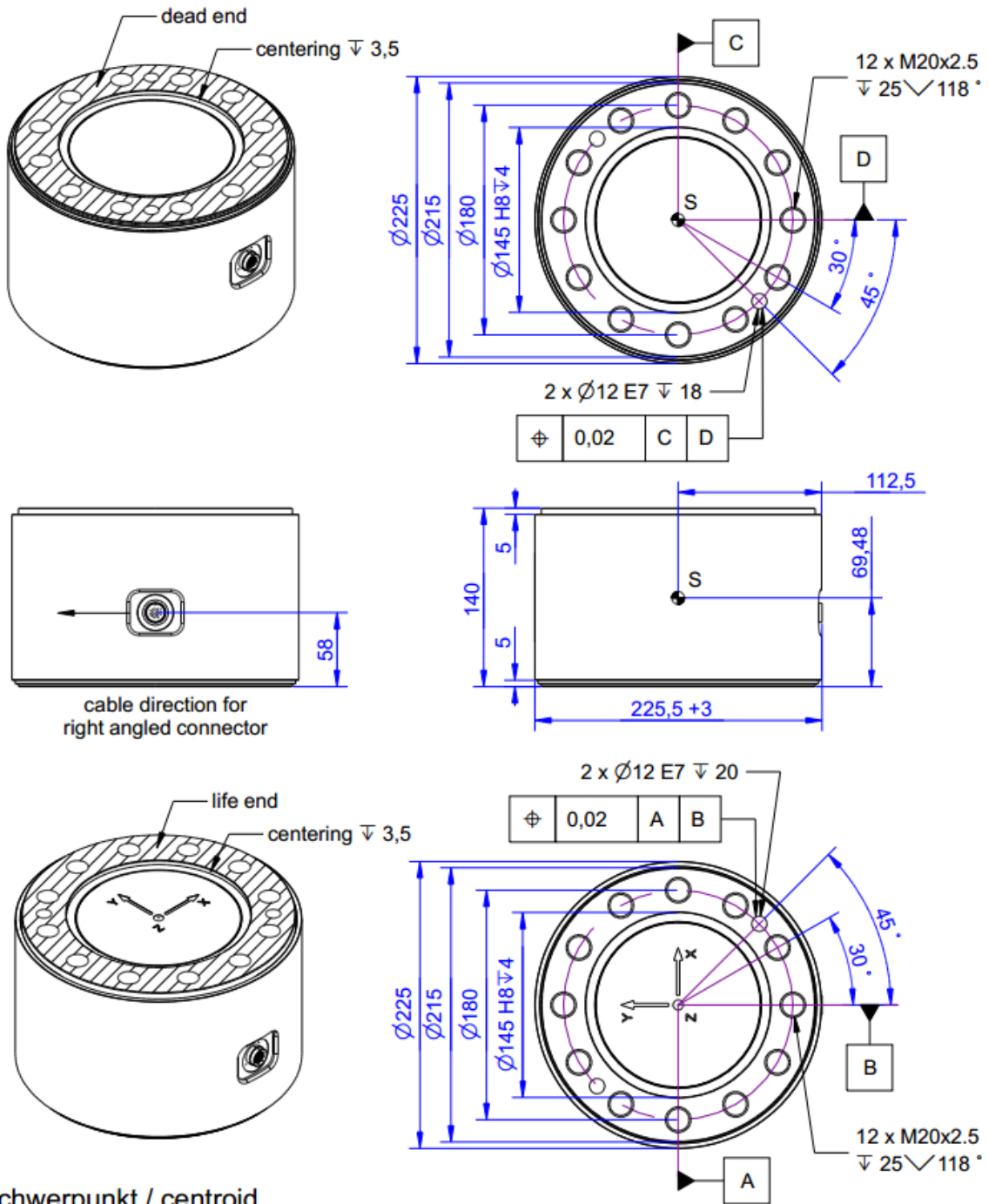
The measurement ranges for the forces and moments can be factory adapted in a wide range. The K6D225 was developed for the following applications:

- Robotics
- Measurements in automation technology.

The force and torque loadings are evaluated e.g. using GSV-8DS SubD44HD measurement amplifier. The 6 load values can be calculated using a Windows DLL or using LabVIEW with the aid of a digital calibration document provided.

The calibration document contains the individual calibration factors and error corrections for the sensor.

Dimensions



Technical Data

Force sensor

Type	6-Axis force sensor
Force direction	Tension / Compression
Rated force Fx	200 kN
Rated force Fy	200 kN
Rated force Fz	500 kN
Force introduction	Inner thread
Dimension 1	12 x M20x2.5
Sensor Fastening	Inner thread
Dimension 2	12 x M20x2.5
Operating force	200 %FS
Rated displacement	0.1 mm
Twist	0.01 rad
Material	Stainless steel
Dimensions	Ø225 x 140 mm
Height	140 mm
Length or Diameter	225 mm
Rated torque Mx	20 kNm
Rated torque My	20 kNm
Rated torque Mz	20 kNm
Torque limit	300 %FS

Electrical Data

Input resistance	350 Ohm
Tolerance input resistance	50 Ohm
Output resistance	350 Ohm
Tolerance output resistance	20 Ohm
Insulation resistance	2 GOhm
Rated range of excitation voltage f	2.5 ... 5 V
Operating range of excitation voltage f	1 ... 10 V
Zero signal	0.1 mV/V

Precision

Relative linearity error	0.2 %FS
Relative zero signal hysteresis	0.02 %FS
Temperature effect on zero signal	0.02 %FS/K
Temperature effect on characteristic value	0.02 %RD/K
Relative creep	0.1 %FS

Connection Data

Connection type	Connector
Name of the connection	2x integrated round plug connector (UP13), 27-pole, male

Eccentricity and Crosstalk

Crosstalk from x to y at rated load	5 %FS
Crosstalk from y to x at rated load	5 %FS
Crosstalk from z to x/y at rated load	5 %FS
Crosstalk from x/y to z at rated load	5

Temperature

Rated temperature range f	-10 ... 70 °C
Operating temperature range f	-10 ... 85 °C
Storage temperature range f	-10 ... 85 °C
Environmental protection	IP65





Abbreviation : RD: „Reading“; FS: „Full Scale“;

The application of a calibration matrix is required for the determination of the forces F_x , F_y , F_z and moments M_x , M_y , and M_z from the 6 measurement channels, and to compensate for the crosstalk.

The calibration data are individually determined and documented for the sensor.

The measurement error is expressed individually by the specification of the extended measurement uncertainty ($k = 2$) for the forces F_x , F_y , F_z , and moments M_x , M_y , M_z .

accessories

Description	Description
 K6D-CalibrationMatrix HL	Standard calibration matrix "High load" for the sensors with big measuring ranges
 GSV-8DS	8-channel amplifier with USB port, analog output, UART interface. Other versions GSV-8AS CAN with Canbus and GSV-8AS EC with EtherCAT fieldbus.
 Connection cable Set 2xUP13/27p/f/90°-D-Sub44HD/m	Set of 2x connection cable UP13/27p/f / 90 °-D-Sub44HD/m
 K6D225 Transportation-Box	high-quality transport box for 6-axis force sensor K6D225;