6-Axis Force Sensor K6D55ri 50N/5Nm/EC

Item number: 13500

The innovative 6-axis force-torque sensor K6D55ri with Robotic Flange ISO 9409-1 was developed for applications in robotics and medical technology.

The integrated EtherCAT P measuring amplifier provides power supply and data transmission via a 4-wire connection cable. The connection cable is pluggable and can be replaced by a plug connection with strain relief under the sensor's mounting plate.

The pre-assembled, drag chain-compatible connection cable is available in various lengths (2m, 5m, 10m).

The GSVmulti application software with integrated EtherCAT Master is optionally available. The GSVmulti software is suitable for configuring the sensor and for data acquisition, e.g. for calibration or commissioning.

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Stand: 11.12.2024

Technical Data

Basic Data		Unit
Type	6-axis force sensor	
Force direction	Tension/Compression	
Dimension 1	Robotic Flange ISO 9409-1-31,33-4-M5	
Sensor Fastening	Ringfläche	
Dimension 2	Robotic Flange ISO 9409-1-31,33-4-M5	
Operating force	300	%FS
Material	alluminum-alloy	
Height	50	mm
Length or Diameter	55	mm

Electrical Data		Unit

Eccentricity and Crosstalk		Unit
Crosstalk	1	%FS

Accuracy Data		Unit
Accuracy class	0,2	
Relative linearity error	0.2	%FS
Relative zero signal hysteresis	0.2	%FS
Temperature effect on zero signal	0.2	%FS/K
Temperature effect on characteristic value	0.05	%RD/K
Relative repeatability error	0.2	%FS

Measuring Frequency		Unit
Data frequency from	1	Hz
Data frequency to	1000	Hz

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Environmental Data		Unit
Rated temperature range from	-10	°C
Rated temperature range to	50	°C
Operating temperature range from	-10	°C
Operating temperature range to	65	°C
Storage temperature range from	-10	°C
Storage temperature range to	65	°C
Environmental protection	IP65	

Abbreviation : RD: „Reading“; FS: „Full Scale“;The application of a calibration matrix is required for the determination of the forces Fx, Fy, Fz and moments Mx, My, and Mz 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 Fx, Fy, Fz, and moments Mx, My, Mz.

Stiffness Matrix

6.9 kN/mm	0	0	0	131.1	0
0	6.9 kN/mm	0	-131.1 kN	0	0
0	0	12.6 kN/mm	0	0	0
0	-131.1 kN	0	5.0 kNm	0	0
131.1 kN	0	0	0	5.0 kNm	0
0	0	0	0	0	5.5 kNm

- The elements with the unit kN/mm describe the relationship between force and path.
- The elements with the unit kNm describe the relationship between torque and twist.
- The elements with the unit kN describe the relationship between torque and path (columns 1 to 3) or the relationship between force and twist (columns 4 to 6)

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