Force Sensor KL20 100N

Item number: 8665

The KL20 belt sensor is suitable for measuring tensile forces in belts up to 20 mm wide and 1.5 mm thick. Two cylindrical pins (Ø2 mm x 31 mm) are used to apply the force. The belt sensor is only 4 mm thick and weighs only 7 g. This makes it easy to integrate into the straps of bags, backpacks, or sports equipment. Elastic straps also allow the creation of chest straps for measuring chest movement or displacement/angle sensors for detecting limb flexion. The KL20 belt sensor is designed for a nominal force of 100 N and can withstand a working force of up to 500 N.

The belt sensor is suitable for installation as a connecting link between two belts or as a force sensor within an undivided belt. When the belt sensor is mounted within a single belt, the sensitivity is approximately 30-50% higher than the characteristic value specified in the test report when mounted "in series" between two individual belts. The sensitivity of a single belt depends on the belt thickness and flexibility and should be determined individually for each belt used.

The KL20 belt sensor is fully encapsulated and resistant to light splash water.

Optional special version

- Vacuum version > 10^{-5} mbar
- Pressure range up to 8 bar
- Suitable for cleanrooms

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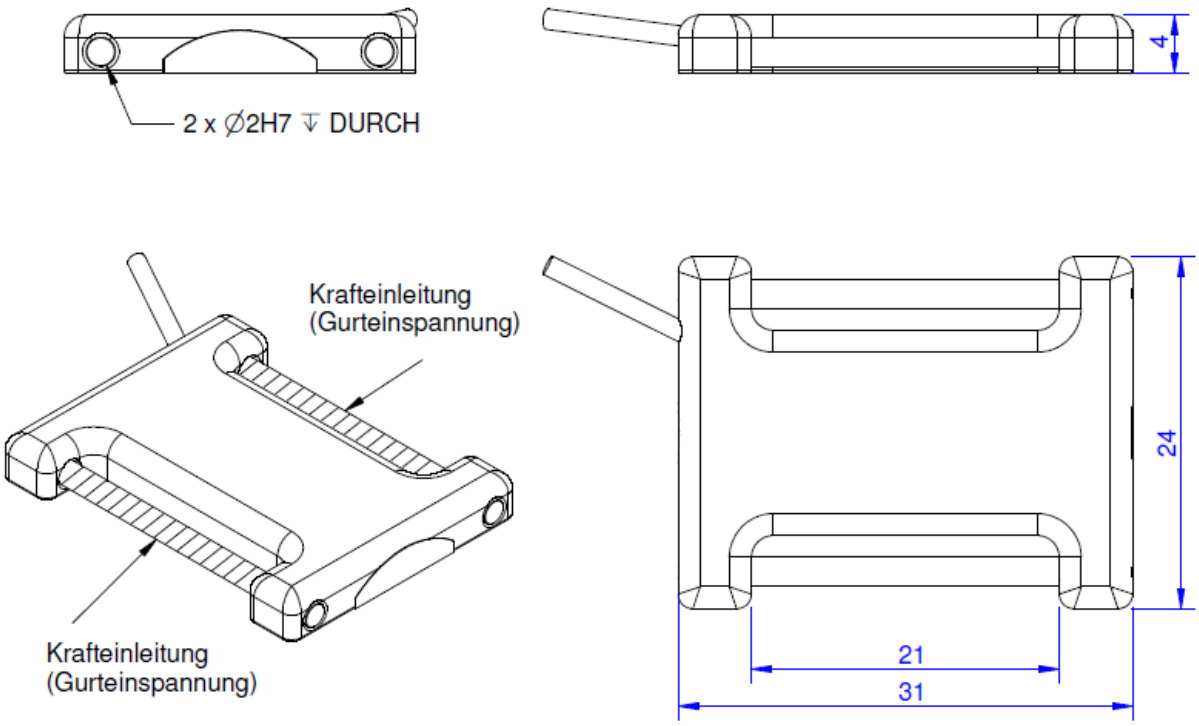
Stand: 27.08.2026

Technical Drawing



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Technical Data

Basic Data		Unit
Type	Kraftsensor	
Force direction	Tension/Compression	
Operating force	400	%FS
Rated displacement	0.05	mm
Material	alluminum-alloy	
Surface	Natur	
Dimensions	31mm x 24mm x 4mm	
Height	19	mm
Length or Diameter	31	mm
Variants	100N	

Electrical Data		Unit
Input resistance	1	kOhm
Tolerance input resistance	10	Ohm
Output resistance	1	kOhm
Tolerance output resistance	10	Ohm
Insulation resistance	2	GOhm
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
Zero signal from	-0.1	mV/V
Zero signal to	0.1	mV/V
Characteristic value range from	0.5	mV/V
Characteristic value range to	0.8	mV/V

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Accuracy Data		Unit
Accuracy class	1	
Relative linearity error	1	%FS
Relative zero signal hysteresis	0.02	%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
Environmental protection	IP65	

Abbreviation: RD: „Reading"; FS: „Full Scale";1) The exact nominal sensitivity is indicated in the test report.

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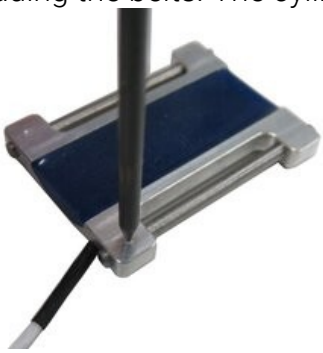
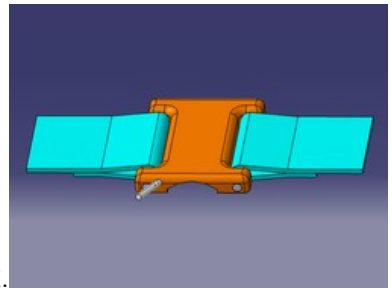
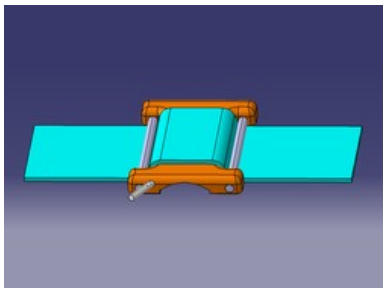
Mounting

The cylinder pins can be removed for loading the belts. The cylinder pins are secured by gluing or by a light grain impact.



The sensor is mounted either between a divided belt or within an undivided belt.