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KM40 100N, 200N, 500N, 1kN, 2kN, 5kN, 10kN, 20kN, 50kN

Description

The force sensor KM40 is a precision force sensor in membrane construction for the measurement of compressive forces. The force sensor is fastened to a flat surface with four screws M4. There is a spherical cap with a radius of 50 mm provided for the force transmission. The force is applied with a flat plate against the cap. The strength introduction occurs with a flat plate against the cap.

The hardness of the spherical cap is HRC 54.
A flattening of the spherical cap from a load of about 20kN is therefore possible.
Environmental protection rating is IP 67.

In contrast to the force sensors KD, KD's and LC series lateral forces from about 5% the original naming power can lead to a measurement error greater than 1%. Therefore, the force transmission must be centric.

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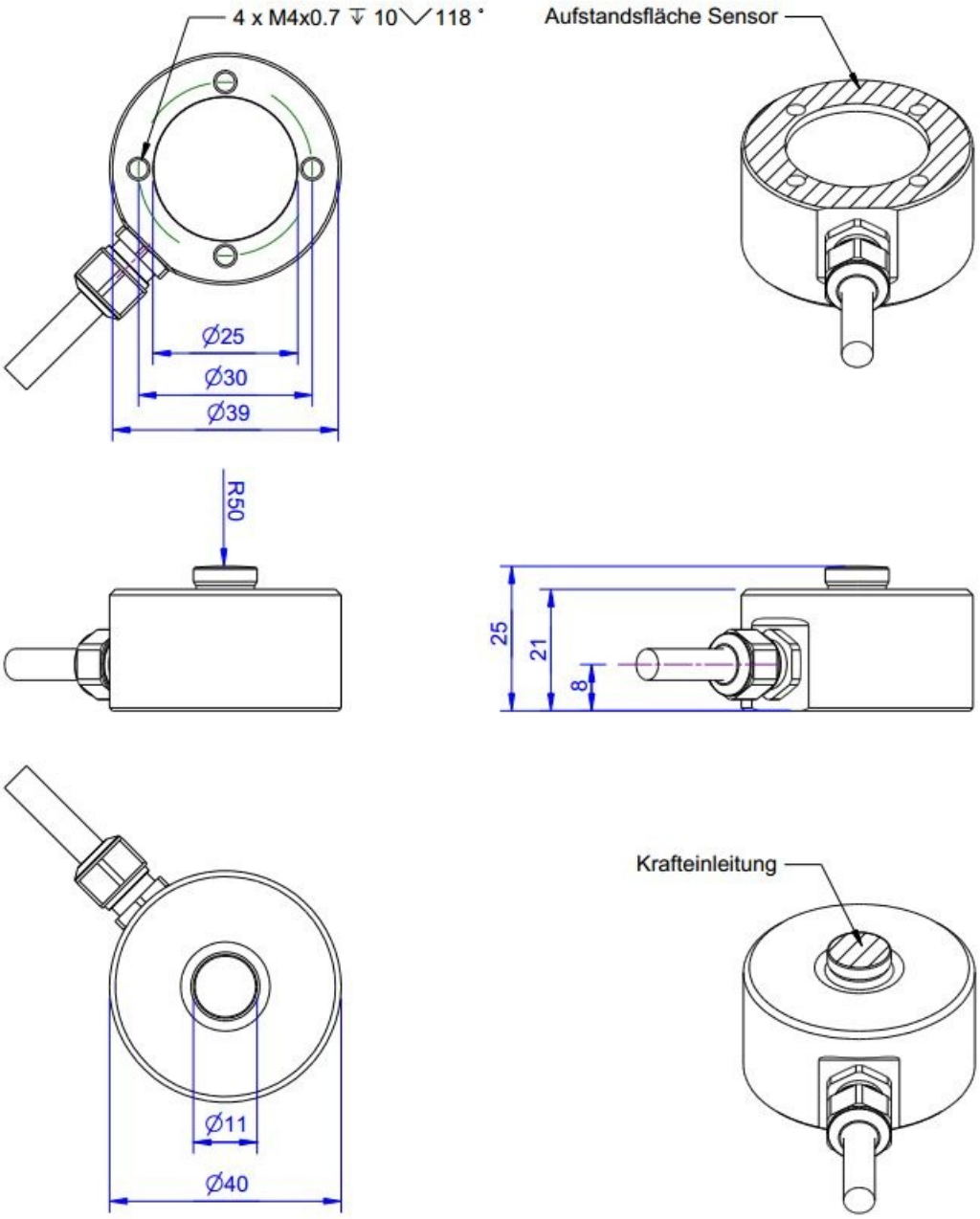
Dimensions



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Technical Data

Force sensor		
Type	Load cell	
Force direction	Compression	
Force introduction	Load button	
Dimension 1	Ø11x4	
Sensor Fastening	Circular ring	
Dimension 2	Ø40x7,5	
Operating force	150	%FS
Rated displacement	0.07	mm
Lateral force limit	50	%FS
Material	Stainless steel	
Natural frequency	5	kHz
Height	25	mm
Length or Diameter	40	mm

Electrical Data		
Input resistance	390	Ohm
Tolerance input resistance	40	±
Output resistance	350	Ohm
Tolerance output resistance	1	±
Insulation resistance	2x10^9	Ohm
Rated range of excitation voltage f	2.5 ... 5	V
Operating range of excitation voltage f	1 ... 10	V
Zero signal	0.05	mV/V
Rated output	1	mV/V / FS

Precision data		
Accuracy class	0,5%	
Relative linearity error	0.1	%FS
Relative zero signal hysteresis	0.05	%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	4 conductor open	
Name of the connection	Unitronic FD CP Plus / 4x0,14	
Cable length	3	m

Environmental data		
Rated temperature range f	-10 ... 70	°C
Operating temperature range f	-10 ... 85	°C
Storage temperature range f	-10 ... 85	°C
Environmental protection	IP67	

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

1) The exact nominal sensitivity is indicated in the test report;

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Pin Configuration

Symbol	Description	Wire colour
+Us	positive bridge supply	brown
-Us	negative bridge supply	white
+Ud	positive bridge output	green
-Ud	negative bridge output	yellow

Pressure load: positive output signal.

Shield- transparent.

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accessories

	Description	Description
	Calibration Certificate kn/20/5	Factory calibration certificate for force to 20 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.
	GSV-1H	Measuring amplifier in top-hat rail housing for sensors with straingages. Analogue output -10V...+10V, limiting frequency 250Hz, 4 input sensitivities from 2.0mV/V.
	High Accuracy Calibration/1D	
	GSV-2TSD-DI	Measuring amplifier in desktop-housing for sensors with straingages. Serial port RS232, USB port, analogue output -5V...+5V, limiting frequency 260Hz, input sensitivity 3.5mV/V.
	GSV-3USB	Measuring amplifier in aluminum housing for sensors with straingages. Limiting frequency 1250Hz, input sensitivity 2 / 3,5 / 10 mV/V.
	GSV-6K	Analogue measuring amplifier in plug housing for sensors with strain gauges. Analogue output configurable, TEDS, sampling frequency 1Hz ... 25kHz, input sensitivity configurable 0.1mV/V ... 8mV/V