

Force Sensor KM40e 100N/010

Item number: 10075



The force sensor KM40e is a precision force sensor in membrane construction with integrated miniature electronics 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.

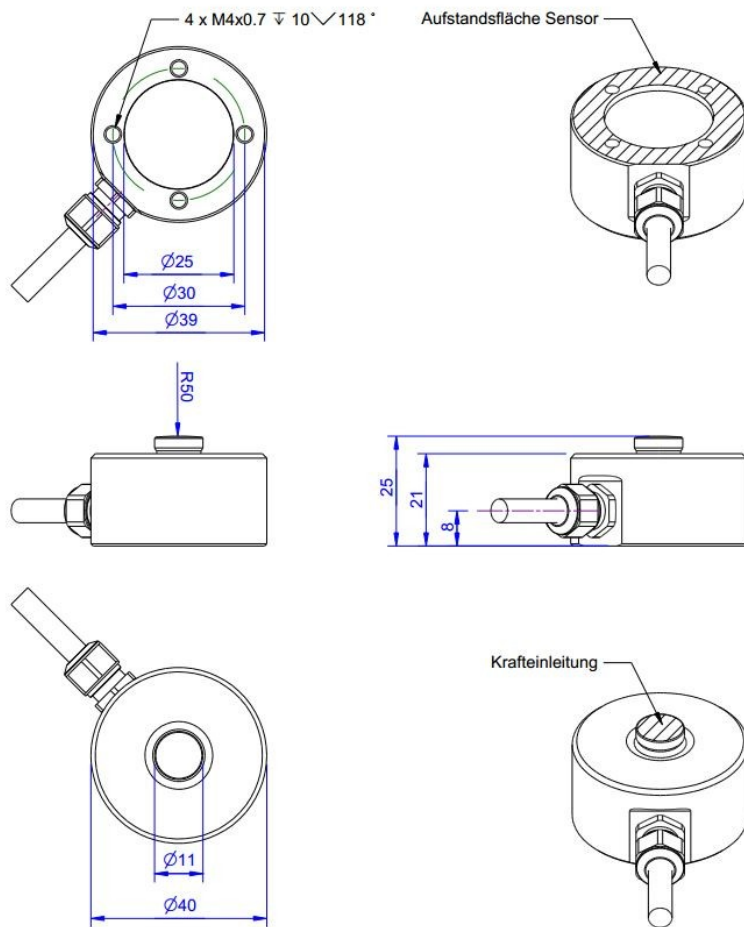
In contrast to the force sensors of series KD, KDs and LC the lateral forces from about 5% of the nominal load can lead to a measurement error greater than 1%. Therefore, the force transmission must be centric.

The sensor with integrated analog amplifier GSV-13i is a compact measuring system.

The electronics amplifies the strain gauge output signal and allows a simple and direct analog measurement in voltage (0... 10V).

Further variants for voltage (0... 5V) or current (4... 20mA) are available on request.

Technical Drawing



Technical Data

Basic Data		Unit
Type	Force load cell	
Force direction	Compression	
Rated force F _x	100	N
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 f _x	5	kHz
Dimensions	Ø 40mm x 25mm	
Height	25	mm
Length or Diameter	40	mm
Variants	100N... 50kN	

Electrical Data		Unit
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 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	0.05	mV/V

Accuracy Data		Unit
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
Analog Output		Unit
Voltage output from	0.05	V
Voltage output to	10	V
Zero adjustment to	0.05	V
Measuring Frequency		Unit
Limit frequency (analog)	1000	Hz
Supply		Unit
Supply voltage from	14	V
Supply voltage to	28	V
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
Storage temperature range from	-10	°C
Storage temperature range to	85	°C
Environmental protection	IP67	

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

Pin Assignment

Channel	Symbol	Description	Wire color	PIN
	Ub	Supply voltage (depends on variant)	brown	
	GND	Ground power supply	white	
	Ua (Out)	Output signal 4... 20mA / 0... 10V / 0... 5V	green	
	Tara (Ta)	Control input for zero balance	yellow	
	Scale (Sc)	Control input for amplification factor	grey	
		Shield	transparent	