

## KM40 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.

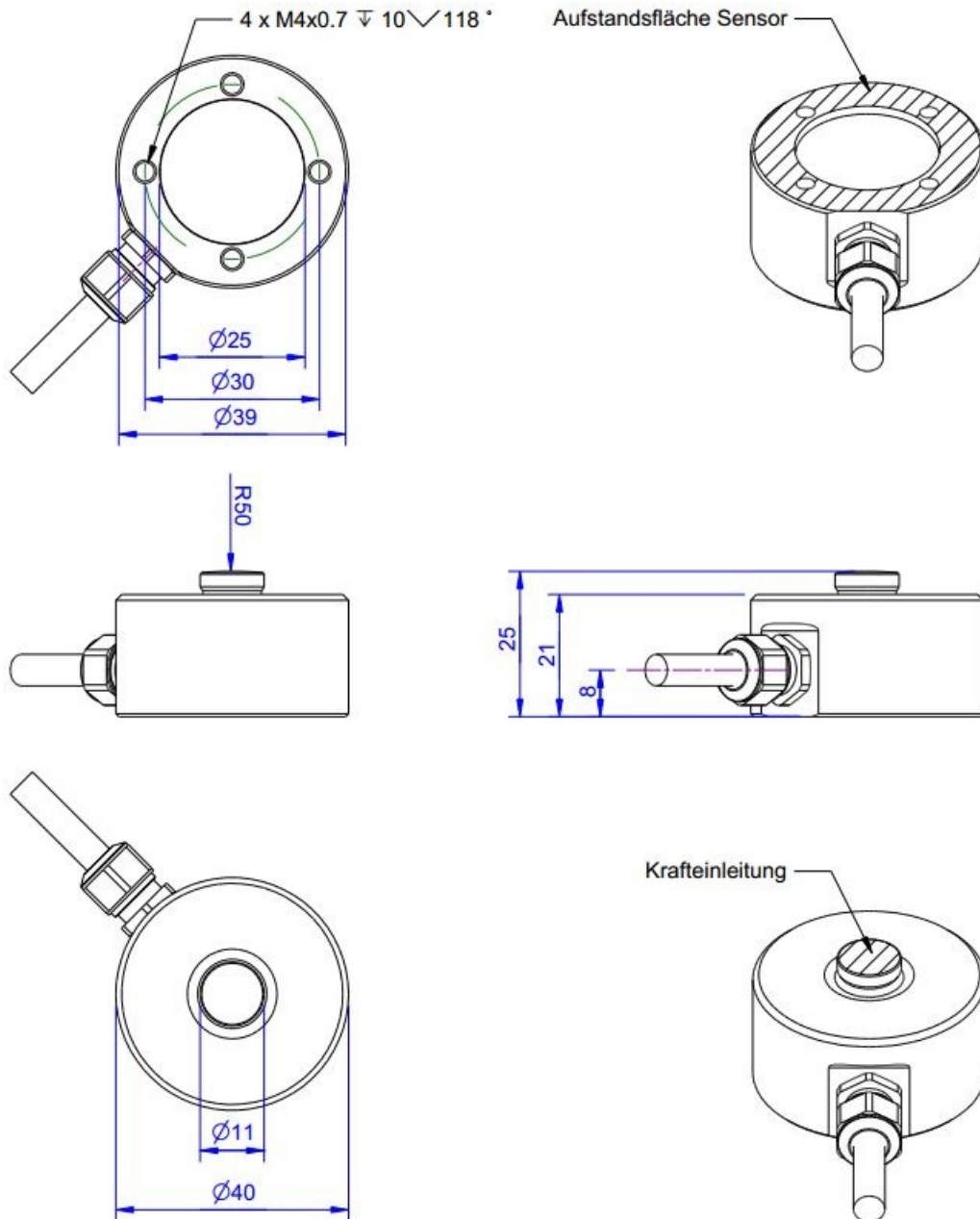
Environmental protection rating is IP 67.

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.

When force sensor KM40d transverse forces are also taken up by a second membrane on the underside of the force sensor.

This transverse forces can be absorbed up to 25% of capacity.

## Dimensions



## Technical Data

### Kraftsensoren

|                     |                 |
|---------------------|-----------------|
| 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           |

### Elektrische Daten

|   |                       |
|---|-----------------------|
| Input resistance                        | 390 Ohm               |
| Tolerance input resistance              | 40 ±                  |
| Output resistance                       | 350 Ohm               |
| Tolerance output resistance             | 1 ±                   |
| Insulation resistance                   | 2x10 <sup>9</sup> 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

|  |            |
|--|------------|
| 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                           |

### Temperature

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



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

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








## 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.*

## 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 strain gauges. Analogue output -10V...+10V, limiting frequency 250Hz, 4 input sensitivities from 2.0mV/V.                                      |
|  | GSV-2TSD-DI                     | Measuring amplifier in desktop-housing for sensors with strain gauges. Serial port RS232, USB port, analogue output -5V...+5V, limiting frequency 260Hz, input sensitivity 3.5mV/V.                         |
|  | GSV-3USB                        | Measuring amplifier in aluminum housing (IP54) for sensors with strain gauges. Limiting frequency 1250Hz, input sensitivity 2 / 3,5 / 10 mV/V.  |
|  | GSV-6K                          | analog amplifier pcb for sensors with strain gauges. Analog output configurable; sampling frequency is 10Hz ... 25kHz, input sensitivity adjustable 0.1 mV / V ... 8 mV / V                                 |