

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.

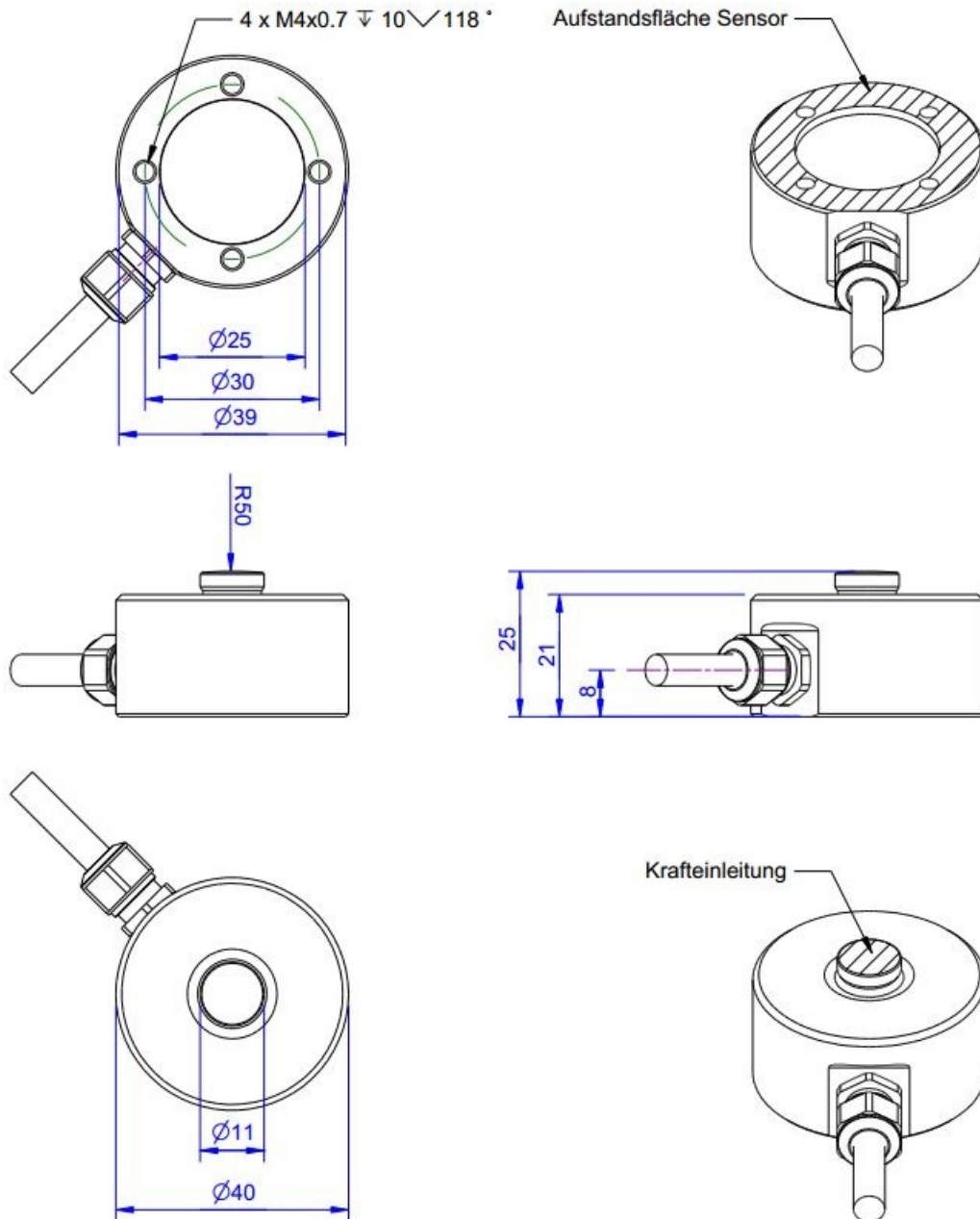
Environmental protection rating is IP 67.

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

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

| | |
|--|------------|
| 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 | Analogue measuring amplifier in plug housing for sensors with strain gauges. Analogue output configurable, TEDS, sampling frequency 10Hz ... 25kHz, input sensitivity configurable 0.1mV/V ... 8mV/V |