

## KD40s ±1kN



### Description

The force sensor KD40S is very well suited for testing tasks in quality assurance as well as in materials testing due to its compact construction.

Inward and outward force transmission are arranged centrally.

The force sensors KD40S up to 100N are constructed as multi-range sensors. The accuracy of 0.1% is already reached at an rated output of 0.5 mV/V. This means that the zero-point stability is 4 times higher than in a sensor with the nominal output of 2 mV/V. The force sensor KD40S can be used up to an output signal of 2 mV/V or four times the specified nominal force.

The force sensor KD40S (up to 100 N) should be installed in such way that the outgoing cables are assigned to the immobile side of the measuring construction. Thus forces from the connecting cable do not have an influence on measurement results.

From 500N upwards the force sensors KD40s have a nominal rated output of 1.0mV/V. They can safely be overloaded up to 1.5x their nominal force.

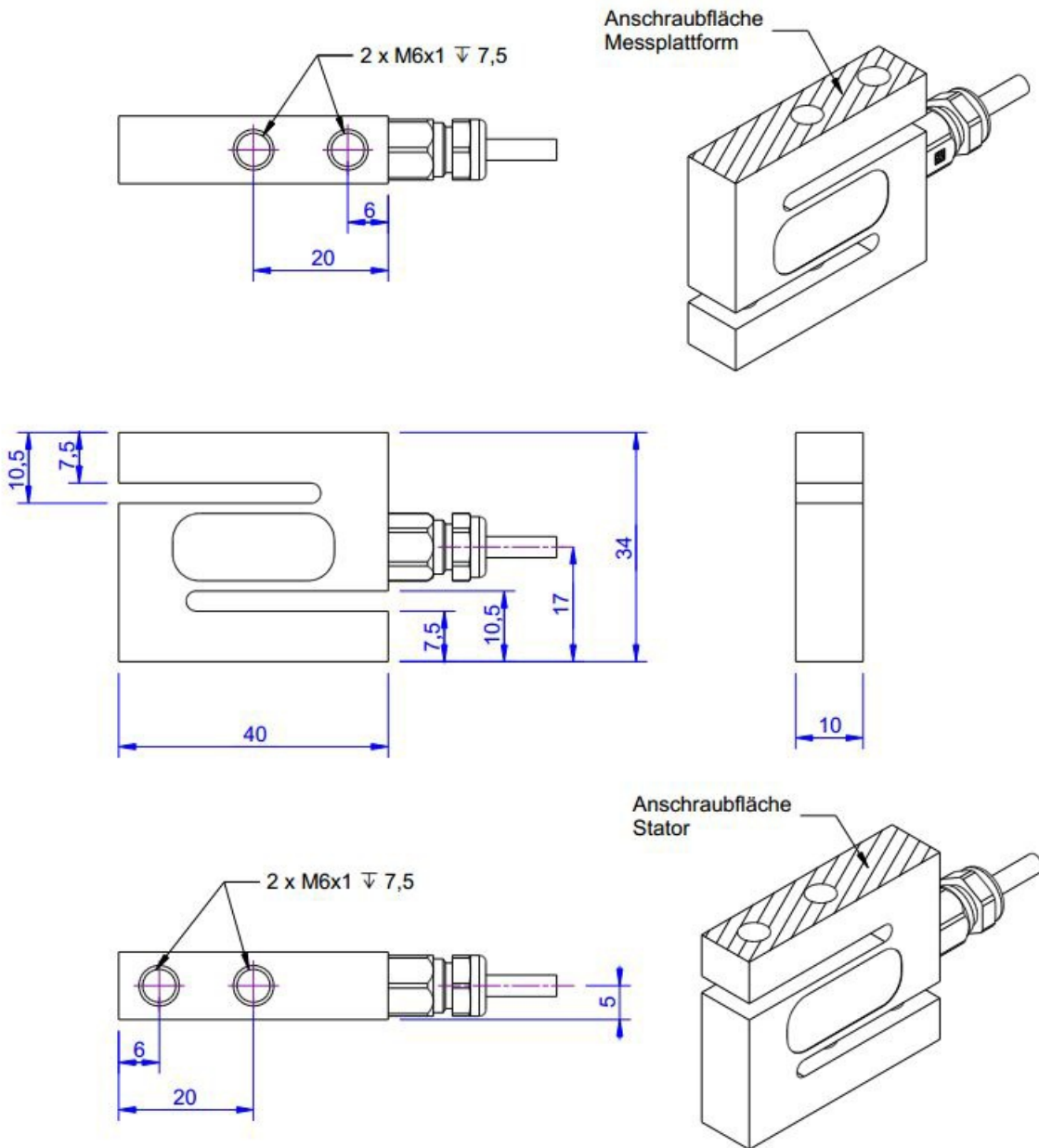
The cable output can be found in the middle of the two force transmission beams.

For force transfer there exists one thread M5 (up to 100N) and M6 (from 500N) in the top and bottom side of the force sensor.

Additionally there is a thread M6 (from 500N) that can be used as anti-twist protection.

The force sensor from a nominal force of 1000N has a height of 34 mm.

## Dimensions



## Technical Data

### Force sensor

|                            |                       |
|----------------------------|-----------------------|
| Type                       | Force sensor          |
| Force direction            | Tension / Compression |
| Rated force F <sub>x</sub> | 1 kN                  |
| Force introduction         | Inner thread          |
| Dimension 1                | M6x1                  |
| Sensor Fastening           | Inner thread          |
| Dimension 2                | M6x1                  |
| Operating force            | 200 %FS               |
| Rated displacement         | 0.2 mm                |
| Lateral force limit        | 100 %FS               |
| Material                   | Aluminium alloy       |
| Natural frequency          | 2 kHz                 |
| Height                     | 34 mm                 |
| Length or Diameter         | 40 mm                 |

### Electrical Data

|   |               |
|---|---------------|
| Input resistance                        | 390 Ohm       |
| Tolerance input resistance              | 40 Ohm        |
| Output resistance                       | 350 Ohm       |
| Tolerance output resistance             | 5 Ohm         |
| Insulation resistance                   | 2 GOhm        |
| 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   |
| characteristic value range min          | 0.5 mV/V / FS |
| characteristic value range max          | 1 mV/V / FS   |

### Precision

|  |            |
|--|------------|
| Accuracy class                             | 0,1%       |
| Relative linearity error                   | 0.02 %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    |

### Connection Data

|                        |                          |
|------------------------|--------------------------|
| Connection type        | 4 conductor open         |
| Name of the connection | ME-SYSTEME.DE / 24-4 PUR |
| Cable length           | 3 m                      |

### Temperature

|                               |               |
|-------------------------------|---------------|
| Rated temperature range f     | -10 ... 70 °C |
| Operating temperature range f | -10 ... 85 °C |



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|                             |               |
|-----------------------------|---------------|
| Storage temperature range f | -10 ... 85 °C |
| Environmental protection    | IP65          |

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*Abbreviation: RD: „Reading“; FS: „Full Scale“;  
The exact 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      |

*Screen - transparent.*

*Pressure load : positive output signal*

## 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                                 |
|  | Ring bolt 8                     | High - strength ring bolt quality 8   |