ME-Meßsysteme GmbH
Eduard-Maurer-Str. 9
DE-16761 Hennigsdorf

Tel +49 (0)3302 8982 4 10
Fax +49 (0)3302 8982 4 69

Mail info@me-systeme.de
Web www.me-systeme.de

# KD24s ±2N, ±10N, ±20N, ±50N, ±100N, ±200N, ±500N/VA, ±1kN/VA

## Description

The force sensor KD24S is the smallest s-shaped force sensor. It is excellently suited for testing tasks in quality assurance as well as in material testing. Inward and outward force transmission are arranged centrically. Under loading the force transmission brackets are moved parallel.
Like the KD40s the force sensor KD24S is constructed as a multi-range sensor. The accuracy of 0.1% is already reached at an output of 0.5 mV/V.
Sensors from 2 to 20N can be operated with 4 times and sensors from 50 to 100N with two times their nominal force range.
It is recommended to fix the sensor cable side (bottom side on picture) on the non-moving side of force transmission.

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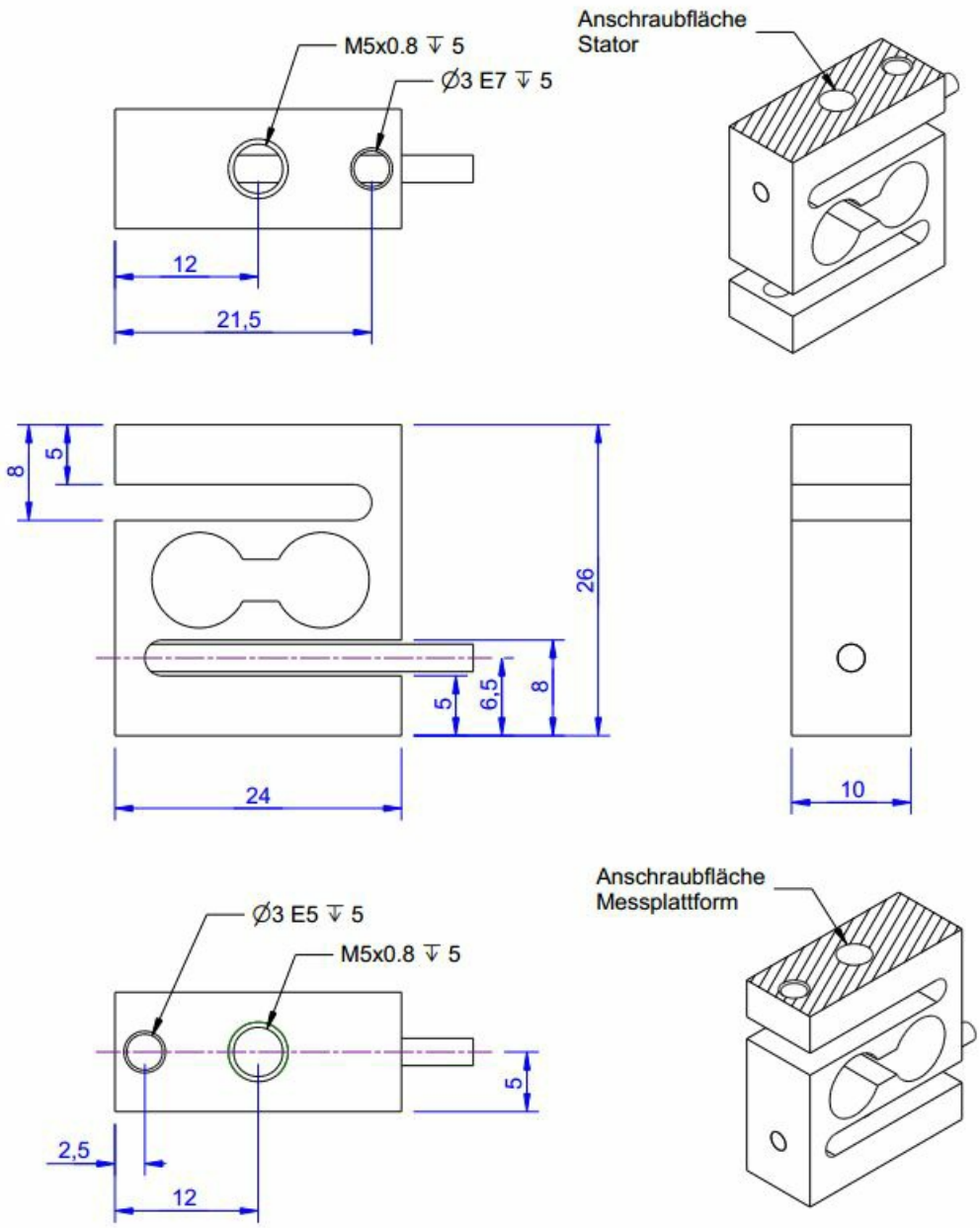
## Dimensions



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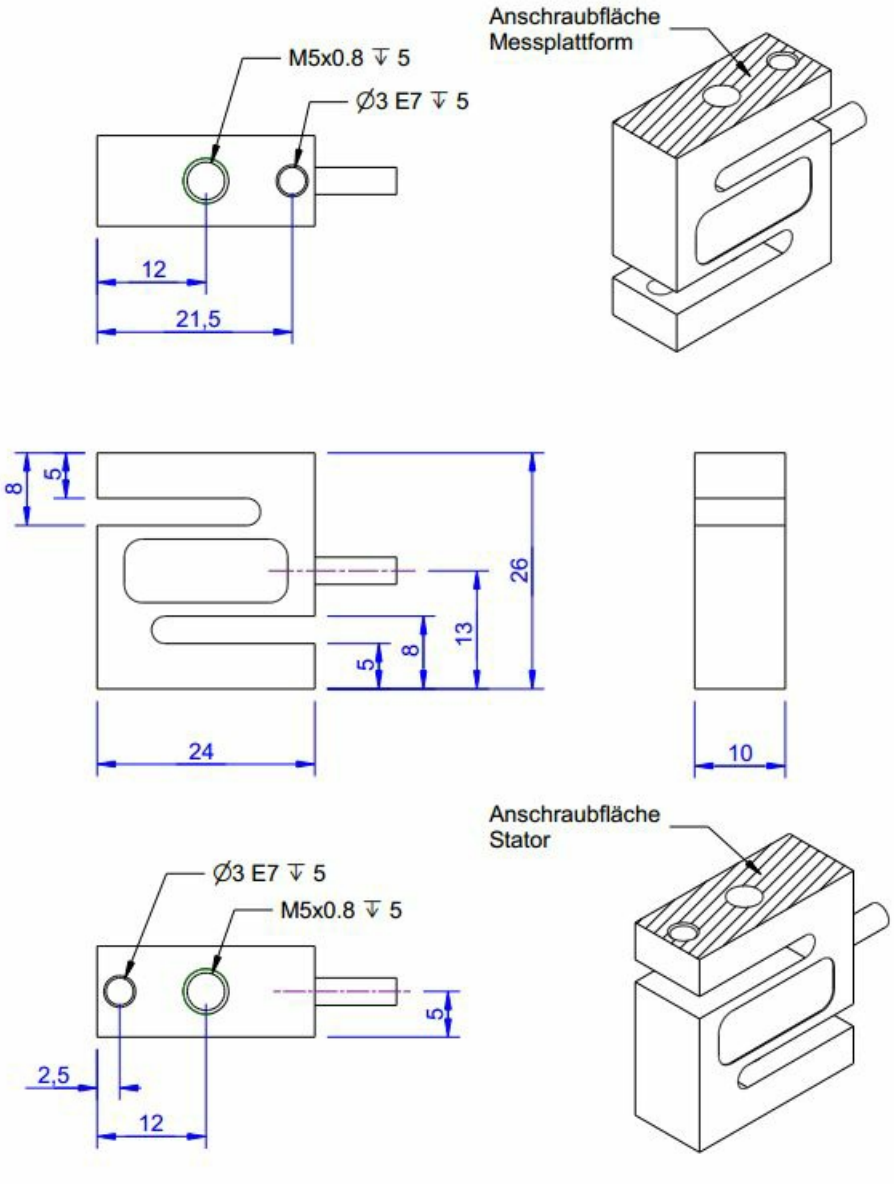

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## Technical Data

| Force sensor | | |
|---|---|---|
| Type | Force sensor | |
| Force direction | Tension / Compression | |
| Force introduction | Inner thread | |
| Dimension 1 | M5x0,8 | |
| Sensor Fastening | Inner thread | |
| Dimension 2 | M5x0,8 | |
| Operating force | 200 | %FS |
| Rated displacement | 0.075 | mm |
| Lateral force limit | 100 | %FS |
| Material | Aluminium alloy | |
| Natural frequency | 2 | kHz |
| Height | 26 | mm |
| Length or Diameter | 24 | mm |
| Torque limit | 2 | Nm |
| Bending moment limit | 2 | Nm |

| Electrical Data | | |
|---|---|---|
| Input resistance | 440 | Ohm |
| Tolerance input resistance | 50 | Ohm |
| Output resistance | 350 | Ohm |
| Tolerance output resistance | 2 | 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 | 0.5 | mV/V / FS |

| Precision data | | |
|---|---|---|
| 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 | STC-31V-4 | |
| Cable length | 2 | m |

| Environmental data | | |
|---|---|---|
| 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 | |

*Abbreviation: RD: „Reading"; FS: „Full Scale";*
*The exact characteristic value is indicated in the test report;*

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## Pin Configuration

| Symbol | Description | Wire colour |
|---|---|---|
| +Us | positive bridge supply | red |
| -Us | negative bridge supply | black |
| +Ud | positive bridge output | green |
| -Ud | negative bridge output | white |

*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. |
| | 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. |
| | Calotte screwable | Screwable stop pin for force introduction for sensors KDs; |