

HEX 12

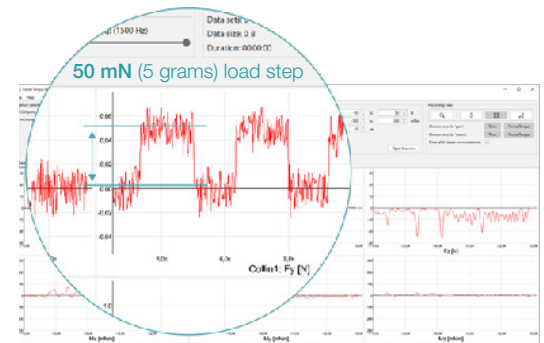
6-Axis F/T Sensor Kit



Resense
A Sense of Touch

Resense 6-axis force torque sensors measure forces and torques in the 3 spatial directions (6 degrees of freedom) using foil strain gauges. The main advantages are their **compact size** and the **hollow shaft option**, which are enabled by the sensor's multi-part deformation body.

The 6-axis F/T sensor kit includes the **F/T sensor**, the **electronics box** and an **application software** to visualize the measurement values.



| Sensor | |
|---------------------------|--|
| Ordering Code | HEX125S-020S-1R1-1 |
| Dimensions | |
| Diameter ^{a)} | 12.5 mm |
| Height | 10.9 mm |
| Weight | 3.3 g |
| Nominal measurement range | |
| F_x, F_y, F_z | ± 25 N |
| M_x, M_y, M_z | ± 0.125 Nm |
| Technical specifications | |
| Accuracy ^{b)} | 1 % |
| Crosstalk | 3 % |
| Overload capacity | 300 % |
| Product features | |
| Material | Titanium grade 5 |
| Protection class | IP20 |
| Temperature range | 0 - 50 °C |
| Technology | Foil strain gauges |
| Cable | Flex cable with axial/radial cable outlet and Sub-D-HD connector |

The smallest 6-axis F/T sensor in the world^{c)}

The **HEX 12** is the smallest commercially available 6-axis force torque sensor in the world^{c)}. It fits for applications where space is extremely limited.

Target applications mainly cover the following areas:

- Finger-force research
- Artificial hands
- Surgical robotics
- Dental research

The sensor kit not only includes our **sensor** but also the **electronics box** and an **application software**. The microcontroller digitizes the analog output signals of the sensor. A calibration matrix is used to calculate the forces and torques in all 6 dimensions, before the values are transmitted to the connected PC via UART or USB. The F/T Explorer application software offers features for real-time visualization and storage of the sensor readings.

| Electronics board | |
|-------------------|----------------------|
| Ordering code | EVAL 040S-06-1 |
| Product features | |
| Dimensions | 54 x 25 x 12.6 mm |
| Supply voltage | 5 V |
| Interface | USB, UART |
| Sample rate | 100 Hz, 500 Hz, 1kHz |
| Resolution (ADC) | 24 bit |

a) The diameter excludes any connector or cable features.

b) The accuracy is the difference between the applied and the actually measured load. The maximum measurement accuracy in percent refers to the full scale value of the sensor.

c) The HEX 12 is the smallest, commercially available 6-axis force torque sensor according to our research.