1. Datasheet

1.1. HEX-E QC

<table>
<thead>
<tr>
<th>General Properties</th>
<th>6-Axis Force/Torque Sensor</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fxy</td>
<td>Fz</td>
</tr>
<tr>
<td>Nominal Capacity (N.C)</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Single axis deformation at N.C (typical)</td>
<td>± 1.7 ± 0.067</td>
<td>± 0.3 ± 0.011</td>
</tr>
<tr>
<td>Single axis overload</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Signal noise* (typical)</td>
<td>0.035</td>
<td>0.15</td>
</tr>
<tr>
<td>Noise-free resolution (typical)</td>
<td>0.2</td>
<td>0.8</td>
</tr>
<tr>
<td>Full scale nonlinearity</td>
<td>&lt; 2</td>
<td>&lt; 2</td>
</tr>
<tr>
<td>Hysteresis (measured on Fz axis, typical)</td>
<td>&lt; 2</td>
<td>&lt; 2</td>
</tr>
<tr>
<td>Crosstalk (typical)</td>
<td>&lt; 5</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>IP Classification</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Dimensions (H x W x L)</td>
<td>50 x 71 x 93</td>
<td>1.97 x 2.79 x 3.66</td>
</tr>
<tr>
<td>Weight (with built-in adapter plates)</td>
<td>0.347</td>
<td>0.76</td>
</tr>
</tbody>
</table>

* Signal noise is defined as the standard deviation (1 σ) of a typical one second no-load signal.

<table>
<thead>
<tr>
<th>Operating Conditions</th>
<th>Minimum</th>
<th>Typical</th>
<th>Maximum</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>7</td>
<td>-</td>
<td>24</td>
<td>[V]</td>
</tr>
<tr>
<td>Power consumption</td>
<td>-</td>
<td>-</td>
<td>0.8</td>
<td>[W]</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>0</td>
<td>-</td>
<td>55</td>
<td>[°C]</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>-</td>
<td>131</td>
<td>[°F]</td>
</tr>
<tr>
<td>Relative humidity (non-condensing)</td>
<td>0</td>
<td>-</td>
<td>95</td>
<td>[%]</td>
</tr>
<tr>
<td>Calculated operation life</td>
<td>30 000</td>
<td>-</td>
<td>-</td>
<td>[Hours]</td>
</tr>
<tr>
<td>Re-calibration period*</td>
<td>-</td>
<td>15 000</td>
<td>-</td>
<td>[Hours]</td>
</tr>
</tbody>
</table>

*Notification is provided when factory re-calibration is recommended.

Complex Loading

During single-axis loading, the sensor can be operated up to its nominal capacity. Above the nominal capacity the reading is inaccurate and invalid.

During complex loading (when more than one axis is loaded) the nominal capacities are reduced. The following diagrams show the complex loading scenarios.

The sensor cannot be operated outside of the Normal Operating Area (marked with blue on the diagrams below).
1.2. HEX-H QC

### General Properties

<table>
<thead>
<tr>
<th>6-Axis Force/Torque Sensor</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fxy</td>
<td>[N]</td>
</tr>
<tr>
<td>Fz</td>
<td>[Nm]</td>
</tr>
<tr>
<td>Txy</td>
<td>[mm]</td>
</tr>
<tr>
<td>Tz</td>
<td>['']</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal Capacity (N.C)</th>
<th>200</th>
<th>200</th>
<th>20</th>
<th>13</th>
<th>[N]</th>
<th>[Nm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single axis deformation at N.C (typical)</td>
<td>± 0.6</td>
<td>± 0.023</td>
<td>± 0.25</td>
<td>± 0.009</td>
<td>± 2</td>
<td>± 3.5</td>
</tr>
<tr>
<td>Single axis overload</td>
<td>500</td>
<td>400</td>
<td>300</td>
<td>300</td>
<td>[%]</td>
<td></td>
</tr>
<tr>
<td>Signal noise* (typical)</td>
<td>0.1</td>
<td>0.2</td>
<td>0.006</td>
<td>0.002</td>
<td>[N]</td>
<td>[Nm]</td>
</tr>
<tr>
<td>Noise-free resolution (typical)</td>
<td>0.5</td>
<td>1</td>
<td>0.036</td>
<td>0.008</td>
<td>[N]</td>
<td>[Nm]</td>
</tr>
<tr>
<td>Full scale nonlinearity</td>
<td>&lt; 2</td>
<td>&lt; 2</td>
<td>&lt; 2</td>
<td>&lt; 2</td>
<td>[%]</td>
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</tr>
<tr>
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### Operating Conditions

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<tr>
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<td>0</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>Relative humidity (non-condensing)</td>
<td>0</td>
<td>-</td>
<td>95</td>
</tr>
<tr>
<td>Calculated operation life</td>
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<tbody>
<tr>
<td>Re-calibration period*</td>
<td>-</td>
<td>7500</td>
<td>-</td>
<td>[Hours]</td>
</tr>
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1.3. HEX-E QC and HEX-H QC Comparison

When the sensor is used in applications where higher sensitivity is needed HEX-E QC is recommended, where higher payload or tool length is needed HEX-H QC is recommended.

The following graphs show the extent of the payload and the tool length that you can use together with the HEX-E and the HEX-H sensors in case of applications requiring high or moderate precision.
Applications requiring high precision (e.g.: force control based applications like Sanding and Pin Insertion)

Other applications (e.g.: part detection, force monitoring)

In the blue region it is recommended to use only the HEX-E QC.
1.4. HEX-E/H QC

* Distance from Robot flange interface to OnRobot tool
All dimensions are in mm and [inches].