SmartIndustrial™

**PRIMARY APPLICATIONS**

- **Navigation**
  - IMU data couples with GNSS to constrain position, bridge GNSS outages, and maintain the right path over the full temperature range
- **Vibration Monitoring**
  - Motor monitoring systems use vibration sensors to prevent downtime and enable an ideal maintenance schedule
- **Tilt Sensing for Construction Equipment**
  - Accurate tilt sensing is critical to securely operate most construction equipment, vehicles, and tools
- **Manufacturing & Robotics**
  - Industrial robots use precise motion data to enable automation, improve efficiency, and monitor conditions

**FEATURED PRODUCTS**

- **IIM-46230 & IIM-46234**
  - High End Industrial, GNSS Module, Delivery Systems
    - Best in class bias instability
    - Ultra-low ARW
    - Custom calibration to improve thermal stability
    - Processing power to incorporate complex algorithms
- **IIM-20670**
  - Antenna Stabilization, Drones
    - Max Gyro FSR: ±1966 dps
    - Max Accelerometer FSR: ±65g
    - Good stability over temp
    - Low Vibration Rectification Error
- **IIM-42652 & IIM-42653**
  - Autonomous Mobile Robots
    - High FSR – 4000dps & 32g
    - Good bias instability
    - Low noise density
- **IIM-4565x**
  - Navigation Units, Drones
    - High FSR – 4000dps & 32g
    - Balanced gyroscope
    - Good bias instability
    - Low noise density
- **IIM-42351 & IIM-42352**
  - Tilt Sensing, Construction Tools, Vibration Sensing (IIM-42352 only)
    - High FSR – 4000dps & 32g
    - Good bias instability
    - Low noise density
- **IIM-42652 & IIM-42653**
  - Autonomous Mobile Robots
    - Max Gyroscope FSR: ±1966 dps
    - Max Accelerometer FSR: ±65g
    - Good stability over temp
    - Low Vibration Rectification Error
- **IIM-20670**
  - Thermally Stable IMU for Drone & Stabilization Applications
    - Low VRE specification leverages the product for deployment in high vibration environment

*InvenSense, a TDK Group Company ("TDK InvenSense") is committed through its Product Longevity Program (PLP) to ensure that its customers will have access to a stable supply of products for their designs. Products are selected for the PLP from products developed for automotive and industrial markets.*

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**PRODUCT CATEGORIES**

- **IIM-46230 & IIM-46234**
  - High End Industrial, GNSS Module, Delivery Systems
- **IIM-20670**
  - Antenna Stabilization, Drones
- **IIM-42652 & IIM-42653**
  - Autonomous Mobile Robots
- **IIM-4565x**
  - Navigation Units, Drones
- **IIM-42351 & IIM-42352**
  - Tilt Sensing, Construction Tools, Vibration Sensing (IIM-42352 only)

*Note: All products have an Operating Temperature Range of -40°C to 105°C and a Shock Tolerance of 10,000g*

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**PRODUCT DETAILS**

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Units</th>
<th>IIM-46234</th>
<th>IIM-46230</th>
<th>IIM-20670</th>
<th>IIM-42652/3</th>
<th>IIM-4565x</th>
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<tbody>
<tr>
<td><strong>Output Data Rate (Max ODR)</strong></td>
<td>kHz</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>32</td>
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<tr>
<td><strong>Gyro FSR</strong></td>
<td>dps</td>
<td>±840</td>
<td>±550 / 500 / 1000 / 2000</td>
<td>±41 / 61 ... 1311, 1968</td>
<td>±500 / 1000 / 2000 / 4000</td>
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<tr>
<td><strong>Gyro Noise Density</strong></td>
<td>mrad/s/√Hz</td>
<td>±6</td>
<td>3</td>
<td>5</td>
<td>3.8</td>
<td>3.3</td>
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<td><strong>Gyro Bias Over Temp</strong></td>
<td>mrad/C □</td>
<td>0.066</td>
<td>2.069</td>
<td>1.724</td>
<td>10</td>
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<td><strong>Gyro Sensitivity Over Temp</strong></td>
<td>%/°C</td>
<td>±0.001</td>
<td>0.001</td>
<td>0.001</td>
<td>0.005</td>
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<td><strong>Gyro Non-Linearity</strong></td>
<td>%/FS</td>
<td>±0.04</td>
<td>0.046</td>
<td>0.2</td>
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<td><strong>Gyro Bias Instability</strong></td>
<td>deg/hr</td>
<td>±1.9</td>
<td>1.9</td>
<td>0.7</td>
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<td><strong>Angular Random Walk</strong></td>
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<td><strong>Accel FSR</strong></td>
<td>g</td>
<td>±8</td>
<td>±2 / 4 / 8 /16</td>
<td>±2 / 4 / 8 / 16 / 32 / 64</td>
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<td><strong>Accel Bias Repeatability</strong></td>
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<td>±0.2</td>
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<td><strong>Accel Noise Density</strong></td>
<td>µg/s/√Hz</td>
<td>±19</td>
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<td>72</td>
<td>70</td>
<td>80</td>
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<tr>
<td><strong>Accel Bias Over Temp</strong></td>
<td>µg/C □</td>
<td>±8.9</td>
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<tr>
<td><strong>Accel Sensitivity Over Temp</strong></td>
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<tr>
<td><strong>Accel Non-Linearity</strong></td>
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**Color Key**

- **Best-in-Class**
- **High-Performance**
- **Standard**

Scan Here for additional materials and information.