IMU20™ MEMS INERTIAL MEASUREMENT UNIT (IMU)

HIGH-PERFORMANCE PRECISION

Designed to meet the demand from high-end industrial and commercial markets

The Collins IMU20™ micro electro-mechanical system (MEMS) IMU is a compact, six-degree-of-freedom inertial measurement unit providing precise, three-axis outputs of angular rate, acceleration and temperature.

It is designed specifically to meet the growing demand from high-end commercial and industrial marketer applications requiring a high-performance, non-ITAR IMU. The IMU20 uses Collins Aerospace industry-leading MEMS inertial sensors that are integrated and calibrated using our in-house, state-of-the-art test facility.

Collins Aerospace has a long and respected heritage in the design and development of inertial sensors. Today, we also specialize in MEMS products.

KEY FEATURES & BENEFITS

• Precision 6-DOF MEMS IMU
• Bias instability and random walk angular: 1°/hr, 0.25°/√hr
  linear: 0.2mg, 0.17m/s/√hr
• Non-ITAR
• Non-licensable
• Compact and lightweight: 58.0 x 59.0 x 36.0H (mm), 200 g
• -45° C to 75° C operating temperature range
• RoHS compliant
• In-house manufacture from MEMS fabrication to IMU calibration
• First-class customer technical support
**IMU20™ MEMS INERTIAL MEASUREMENT UNIT (IMU)**

**PRODUCT APPLICATIONS**
- Small satellite stability control
- Precision guidance and navigation
- High shock and vibration systems
- INS (inertial navigation systems)
- GPS/GNSS drop-out aiding
- Autonomous vehicle control, unmanned aerial vehicles and remotely operated vehicles

**PERFORMANCE**

**Medium performance**
- High-performance gyro
- Fully modular

**PRODUCT BENEFITS**
- Full 6-DoF inertial measurement unit
- Latest capacitive technology
- Low power and rapid start-up
- Modular architecture
- Non-licensable

**KEY CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Volume</th>
<th>65.5 cm³ in typical housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass</td>
<td>200 g in typical housing</td>
</tr>
<tr>
<td>Power consumption</td>
<td>≤3.75 W</td>
</tr>
<tr>
<td>Operating temperature range</td>
<td>-45° C to 75° C</td>
</tr>
<tr>
<td>Start-up time</td>
<td>&lt;400ms</td>
</tr>
<tr>
<td>Built-in-test</td>
<td>Start up, continuous</td>
</tr>
<tr>
<td>Gyro operating range</td>
<td>±498°/s</td>
</tr>
<tr>
<td>Accelerometer operating range</td>
<td>±30 g (all axes)</td>
</tr>
<tr>
<td>Supply voltage</td>
<td>+5 VDC</td>
</tr>
<tr>
<td>Electrical interface</td>
<td>SDLC (configurable)</td>
</tr>
</tbody>
</table>

**TYPICAL PERFORMANCE**

**GYRO**
- Bias repeatability (1s)*: 20°/hr
- Bias instability (max): 1°/hr
- Random walk (max): 0.25°/√hr, 0.17 m/s/√hr
- Scale factor error (1s)*: 600 ppm, 250 ppm (±1g)
- Bandwidth (-90°): 135 Hz

**ACCELEROMETERS (±30G)**
- Bias repeatability (1s)*: 0.7 mg
- Bias instability (max): 0.2 mg
- Random walk (max): 0.17 m/s/√hr
- Scale factor error (1s)*: 250 ppm (±1g)
- Bandwidth (-90°): 130 Hz

**PERFORMANCE**

**Low cost IMU**
- Small form factor
- Under 1 cubic inch volume
- Non-licensable

**High performance**
- Best-in-class MEMS IMU
- Highly modular, tailored solution
- Non-licensable

**Alternative Products**

**IMU15™**

**PERFORMANCE**
- Low cost IMU
  - Small form factor
  - Under 1 cubic inch volume
  - Non-licensable

**IMU25™**

**PERFORMANCE**
- High performance
  - Best-in-class MEMS IMU
  - Highly modular, tailored solution
  - Non-licensable

*All axes, all temperatures, factory fresh
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