



# **HG1120** **MEMS INERTIAL** **MEASUREMENT UNIT**

**Honeywell**

# HG1120 MEMS INERTIAL MEASUREMENT UNIT

## KEY HONEYWELL ADVANTAGES

- World class inertial sensor development, calibration and compensation.
- Proven reliability, dependability and ruggedness, through unit life.
- RS-422 Asynchronous, CAN2A / CAN2B, and SPI Interface Protocols.
- Suitable applications include autonomous vehicles, precision agriculture, surveying, platform control and motion compensation.
- Units feature a range of user configurable options with selectable output data rates and filtering.
- Precision Delta Velocity/Angle outputs enable direct yaw, pitch and roll integration.



Proven - Dependable - Accurate

The HG1120 is a micro-electro-mechanical system (MEMS) based inertial measurement unit (IMU) designed to meet the needs of a range of applications across various markets including agriculture, AUVs, industrial equipment, robotics, survey/mapping, stabilized platforms, transportation, UAVs, and UGVs. With industry standard communication interfaces and a wide input voltage range the HG1120 is easily integrated into the variety of architectures that these applications present. The extremely small size, light weight, and low power make the HG1120 ideal for most applications.

The HG1120 includes MEMS gyroscopes, accelerometers, and magnetometers. In addition, the HG1120 employs an internal environmental isolation system to attenuate unwanted inputs commonly encountered in real world applications. The internal isolation and other proprietary design features ensure the HG1120 is rugged enough to meet the needs of the most demanding users.

Three different performance grades of the HG1120 are available as off-the-shelf items.

The HG1120 offers configurable features, such as output data rate and control signal filtering, to simplify system integration.

Honeywell screens and calibrates all of the MEMS inertial sensors utilized in the HG1120 IMU.

The HG1120 is not ITAR controlled. Its Export Control Classification Number (ECCN) is 7A994.

## HG1120 IMU TYPICAL KEY CHARACTERISTICS

|  |  |
|--|--|
| Gyroscope Operating Range                  | -500°/sec to +500°/sec   |
| Accelerometer Operating Range              | -16g to +16g   |
| Magnetometer Operating Range               | -16 gauss to +16 gauss   |
| Supply Voltage                             | +3.0 to +5.5 VDC   |
| Power Consumption                          | < 0.4 Watts  |
| Operating Temperature Range                | -40°C to 85°C  |
| Volume / Size                              | 29 cm <sup>3</sup> (1.7 in <sup>3</sup> ), 4.70 cm x 4.39 cm x 1.41 cm   |
| Weight                                     | 54 grams (0.12 lbs) Typical  |
| Selectable Data Rates                      | Incremental/Control Data Rates of 100 Hz/600 Hz or 300 Hz/1800 Hz  |
| Baud Rate                                  | 1MBit CAN/RS422, 2-9 MBit SPI  |
| Dual Navigation/<br>Control Serial Outputs | Fully Compensated Incremental/Delta Outputs are Ready for Integration into Position/Attitude<br>Control Message Optimizes Latency & Bandwidth Without Sacrificing Accuracy |

## HG1120 IMU STANDARD MODELS TYPICAL PERFORMANCE - STABLE ROOM TEMPERATURE

| Marketing Part Number <sup>1</sup> | Gyro Bias Repeatability (°/hr, 1σ) | Gyro Bias In-Run Stability (°/hr, 1σ) | ARW (°/√hr) | Accel Bias Repeatability (mg, 1σ) | Accel Bias In-run Stability (mg, 1σ) | VRW (m/s/√hr) |
|------------------------------------|------------------------------------|---------------------------------------|-------------|-----------------------------------|--------------------------------------|---------------|
| HG1120CA50                         | 260                                | 10                                    | 0.3         | 5                                 | 0.03                                 | 0.04          |
| HG1120BA50                         | 520                                | 24                                    | 0.4         | 10                                | 0.05                                 | 0.06          |
| HG1120AA50                         | 780                                | 48                                    | 0.5         | 15                                | 0.08                                 | 0.10          |

## HG1120 IMU TYPICAL PERFORMANCE OVER FULL TEMPERATURE RANGE

| Marketing Part Number <sup>1</sup> | Gyro Bias Repeatability (°/hr, 1σ) | Gyro Bias In-run Stability (°/hr, 1σ) | ARW (°/√hr) | Accel Bias Repeatability (mg, 1σ) | Accel Bias In-run Stability (mg, 1σ) | VRW (m/s/√hr) |
|------------------------------------|------------------------------------|---------------------------------------|-------------|-----------------------------------|--------------------------------------|---------------|
| HG1120CA50                         | 500                                | 38                                    | 0.6         | 8                                 | 0.11                                 | 0.06          |
| HG1120BA50                         | 720                                | 65                                    | 0.7         | 16                                | 0.15                                 | 0.09          |
| HG1120AA50                         | 1080                               | 120                                   | 1.3         | 24                                | 0.20                                 | 0.15          |

<sup>1</sup>When ordering direct from Honeywell, use part numbers 68901120-CA50, 68901120-BA50 and 68901120-AA50.

### For More Information

[aerospace.honeywell.com/HG1120](http://aerospace.honeywell.com/HG1120)

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