



# MEMSENSE

Customer Focused Inertial Solutions

# HP IMU



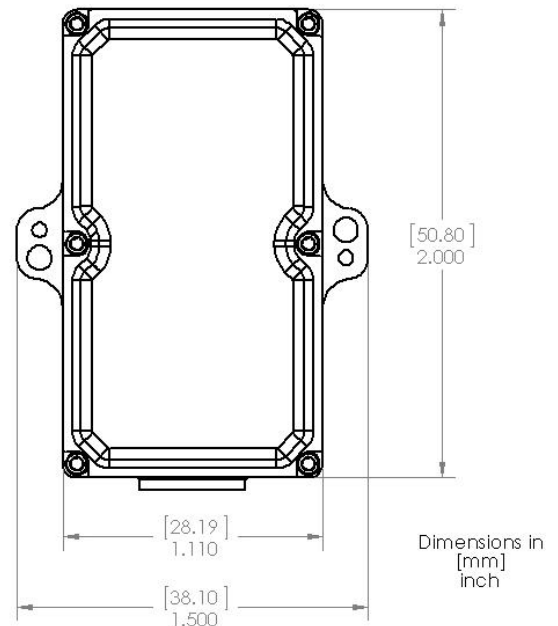
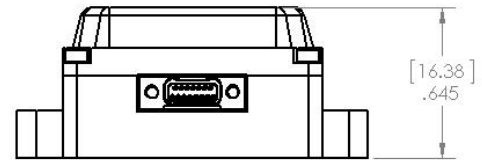
The *HP IMU* is a MEMS Inertial Measurement Unit using precision accelerometers and vibration rejecting gyroscopes. The IMU features a Mil-Standard connector and is housed in an ultra-durable and compact aluminum housing.

## Key Features

|                            |                             |
|----------------------------|-----------------------------|
| Accel Dynamic Range        | $\pm 5$ g                   |
| Accel Bias Instability     | 14.3 $\mu$ g                |
| Accel Velocity Random Walk | 0.050 m/s/h <sup>-1/2</sup> |
| Gyro Dynamic Range         | $\pm 300$ °/s               |
| Gyro Bias Instability      | 20.0 °/h                    |
| Gyro Angle Random Walk     | 2.0 °/h <sup>-1/2</sup>     |

## Applications

- UAS Navigation & Control
- Platform Stabilization
- Gimbal Pointing
- Antenna Pointing



| ACCELERATION         |            | UNITS                 | NOTES      |
|----------------------|------------|-----------------------|------------|
| Dynamic Range        | ± 10       | g                     | Minimum    |
| Bias Instability     | 14.3       | µg                    | Typical    |
| Offset               | ± 1.6      | mg                    | Typical    |
| Nonlinearity         | ± 0.3      | % of FS               | Typical    |
| Velocity Random Walk | 0.050      | m/s/h <sup>-1/2</sup> | Typical    |
| Noise Density        | 99         | µg/Hz <sup>-1/2</sup> | Typical    |
| Digital Scale Factor | 2.2888E-04 | g/bit                 |            |
| Bandwidth            | 50         | Hz                    | -3dB point |

| ANGULAR RATE         |            | UNITS                  | NOTES      |
|----------------------|------------|------------------------|------------|
| Dynamic Range        | ± 300      | °/s                    | Minimum    |
| Bias Instability     | 20         | °/h                    | Typical    |
| Offset               | ± 1.5      | °/s                    | Maximum    |
| Nonlinearity         | ± 0.1      | % of FS                | Typical    |
| Angle Random Walk    | 2.0        | °/h <sup>-1/2</sup>    | Typical    |
| Noise Density        | 0.051      | °/s/Hz <sup>-1/2</sup> | Typical    |
| Digital Scale Factor | 1.3733E-02 | °/s/bit                |            |
| Bandwidth            | 50         | Hz                     | -3dB point |

| MAGNETIC FIELD       |            | UNITS                      | NOTES      |
|----------------------|------------|----------------------------|------------|
| Dynamic Range        | ± 1.9      | gauss                      | Minimum    |
| Offset               | ± 0.005    | gauss                      | Typical    |
| Nonlinearity         | ± 0.1      | % of FS                    | Typical    |
| Noise Density        | 79.2       | µgauss /Hz <sup>-1/2</sup> | Typical    |
| Digital Scale Factor | 8.6975E-05 | gauss /bit                 |            |
| Bandwidth            | 50         | Hz                         | -3dB point |

| PHYSICAL            |                  | UNITS | NOTES       |
|---------------------|------------------|-------|-------------|
| Dimensions          | 2.0 x 1.5 x 0.65 | in.   | (L x W x H) |
| Mass                | 55               | grams |             |
| Supply Voltage      | 5.4 to 9.0       | VDC   |             |
| Supply Current      | 210              | mA    |             |
| Interface Connector | MIL-DTL-32139    |       | 15 pin      |

For other configurations and further detailed specifications see the HP IMU User Guide.