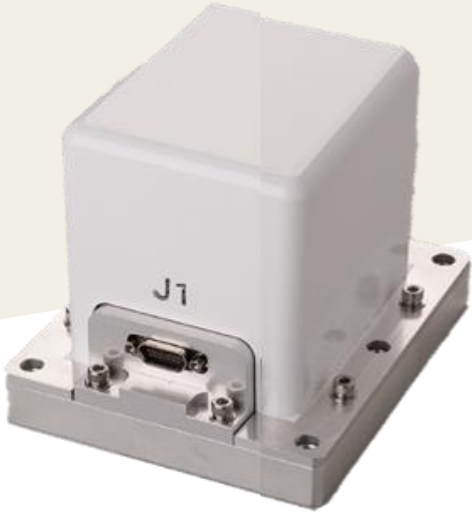


Small Inertial Sensor(IMU) MRN-5X



○ Description

- IMU for space is composed of high precision MEMS gyroscopes and accelerometers
- Redesigned the 2 IMU's MRN-0X into 1 IMU to downsize the unit
- Customizable gyroscope and accelerometer range
- Read across the same parts and manufacturing process as MRN-0X

○ Application

Inertial navigation and spacecraft attitude control

Launch vehicle

Probe(Rover)

Satellite

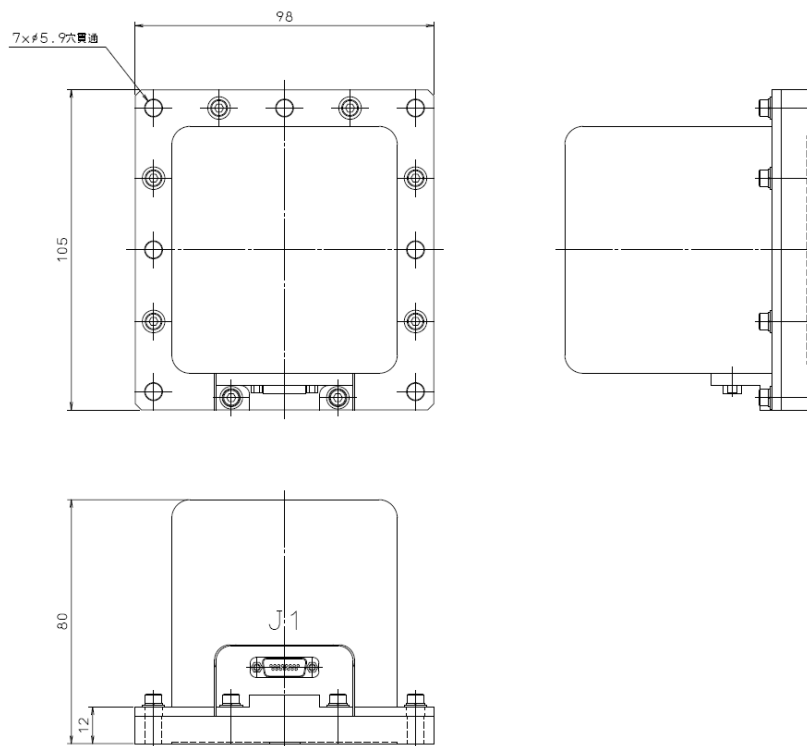
Orbital vehicle

Etc.

Technical Data

| | Item | Value |
|--------------------------|-------------------------------|---------------------------|
| Gyroscope Performance | Measurement range | ±50 deg/s |
| | Performance range | ±10 deg/s |
| | Bias over temperature | 10deg/h |
| | Bias repeatability | 20 deg/h |
| | Bias instability | 0.1 deg/h |
| | Angle random walk | 0.02 deg/√h |
| | Scale factor over temperature | 500 ppm |
| | Scale factor non-linearity | 500 ppm |
| | Misalignment | 4m rad |
| | Bias vibration sensitivity | 1 deg/h/grms ² |
| Acceleration Performance | Measurement range | ±2.5 g |
| | Performance range | ±1 g |
| | Bias over temperature | 1 mg |
| | Bias repeatability | 3 mg |
| | Bias instability | 10 μG (TBD) |
| | Angle random walk | 25 mm/s/√h (TBD) |
| | Scale factor over temperature | 500ppm |
| | Misalignment | 4m rad |
| | Bias vibration sensitivity | TBD |

| | Item | Value |
|----------------------------|----------------------------------|---|
| Electrical Characteristics | Supply voltage | 12VDC±1V |
| | Power consumption | 2.5W |
| | Warm-up time | 30min |
| Mechanical Characteristics | Dimensions | 88 × 106 × 83 mm (TBD) |
| | Weight | 0.8kg (TBD) |
| | Connector | Micro D-sub 15pin |
| Interfaces | Data output cycle | 100hz |
| | Output format | RS422 |
| | Communication type | Asynchronous serial |
| | Baud rate | 115,200bps |
| Operating Conditions | Operating temperature range | -24°C~65°C |
| | Performance temperature range | -14°C~55°C |
| | Humidity(operation) | 60%RH |
| | Random vibration (operation) | XY direction : 112m/s ² rms Z direction : 150m/s ² rms |
| | Low frequency shock (operation) | 139m/s ² × 10ms |
| | High frequency shock (operation) | 50~790 Hz: +6dB/oct 790~4000Hz: 3335m/s ² |



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Specification subject to change without notice. Issue Sep./2023