# Marion XNI50

## Key Features

- Inertial Measurement Unit (IMU)
- Three-axis MEMS gyroscopes and accelerometers
- Compact size
- Light weight
- High-shock and vibration resistance
- Low power consumption
- Tactical grade performance

## Description

The XNI50 is an Inertial Measurement Unit (IMU) that measures angular rates and linear accelerations. The XNI50 is composed of three-axis Micro Electro Mechanical System (MEMS) gyroscopes and accelerometers. The XNI50 is specifically designed for navigation, control, and tactical applications. The XNI50 is compact, light and low power consumption. It offers excellent bias stability and scale factor performance. The solid-state MEMS sensor provides long lifetime and performance reliability. The fast start-up time and continuous Built-In Test (BIT) make the XNI50 easy to use in a wide range of high order integrated system applications. The XNI50 satisfies severe vibration, shock, temperature, and EMI/EMX MIL standards, making it suitable for use in various applications such as unmanned vehicles (UAVs), tactical grade guided weapons, and surveillance systems.

## Sensors

| Parameter | | Accelerometers | Gyroscopes |
|---|---|---|---|
| Range | | ±50g(available up to ±75g) | ±500°/s (available up to 1000°/s) |
| Bias repeatability | XNI50FA | 5mg (1σ) | 50°/hr (1σ) |
| | XNI50HC | 3mg (1σ) | 30°/hr (1σ) |
| | XNI50IE | 2mg (1σ) | 10°/hr (1σ) |
| Random walk | | 0.1 m/s/rt-hr | < 0.125 °/rt-hr |
| Bias in-run Stability | | 0.02mg | 1°/hr |
| Vibration rectification error (VRE) | | 2mg | 30°/hr |
| Alignment error | | 0.05 ° | 0.05 ° |
| Bandwidth | | 80Hz | 80Hz |

## Application

Navigation system for airborne

Platform stabilization

Missile



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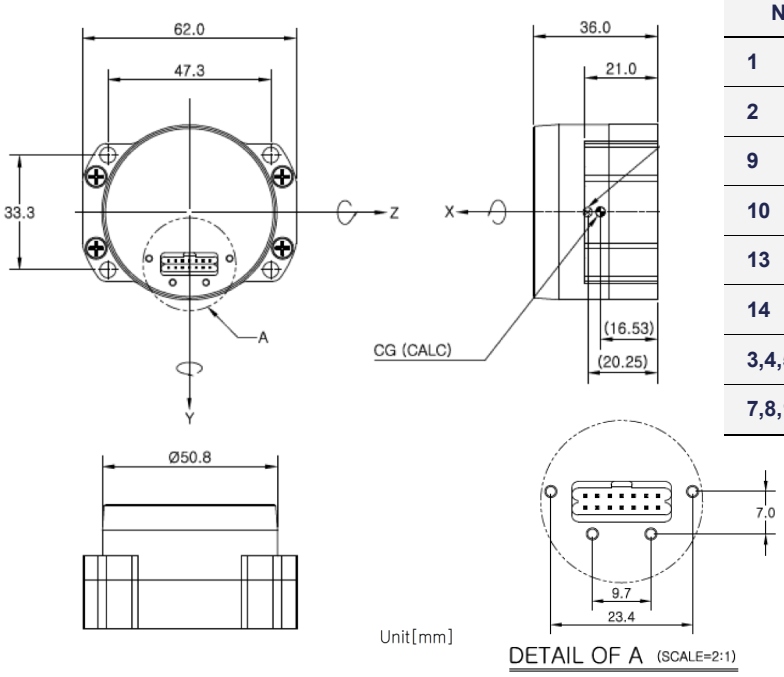
## Mechanical & Environmental

| Parameter | Specification |
|---|---|
| Weight | < 170g |
| Size | Φ50.8mm x H36mm (Except flange) |
| Operating temperature | -40°C ~ +85 °C |
| Enclosure | Aluminum nickel plating |
| Shock limit | 2000g |

## Electrical & Interfaces

| Parameter | Specification XNI50 |
|---|---|
| Input voltage | DC+3.3 ~ DC+5.5 V (5.0V, Typ.) |
| Power consumption | < 5W (DC+5.0V) |
| Main connector | MTMM-107-06-L-D-180(samtec) |
| Main Serial | SDLC |
| Output rate | Up to 400hz |

## Dimension




## Pin description

| Number | Name | Function |
|---|---|---|
| 1 | GND | Ground |
| 2 | VDD | Power (DC+5V) |
| 9 | Data High | SDLC Data High |
| 10 | Data Low | SDLC Data Low |
| 13 | Clock High | SDLC Clock High |
| 14 | Clock Low | SDLC Clock Low |
| 3,4,5,6, | NC | Not Connect |
| 7,8,11,12 | NC | Not Connect |

## Product Line

XNI50$X_1$ $X_2$ ←

$X_1$ : F – 5mg , G – 4mg, H – 3mg, I – 2mg, J – 1mg (Accelerometer bias repeatability)
$X_2$ : A – 50˚/hr, B – 40˚/hr, C – 30˚/hr, D – 20˚/hr, E – 10˚/hr (Gyroscope bias repeatability)



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