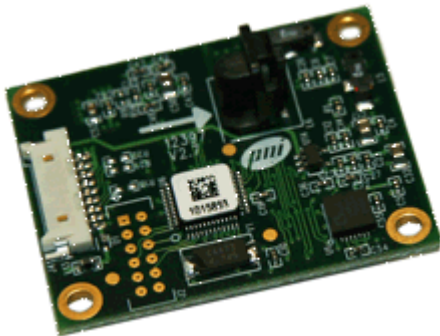


TCM[®] 2.6

Tilt Compensated 3-Axis Compass Module

The TCM2.6 has all the features of the TCM2.5, but is about half the size and width, making it ideal for today's size sensitive applications. It uses the same RS-232 interface protocol, which allows for easy integration into existing systems, but has the addition of an extended temperature range of -40 to 85°C.

The TCM2.6 integrates 3-axis magnetic field sensing, 2-axis tilt sensing and compass heading into a single module. Advantages include protocol compatibility with existing systems, low power consumption, large signal noise immunity under all conditions, and a large magnetic field measurement range in a small package. The TCM2.6 combines PNI Corporations patented Magneto-Inductive (MI) magnetic sensors and a MEMS accelerometer in a single module, offering unparalleled cost effectiveness and performance. MI sensors change inductance by 100% over the wide field measurement range. This variable inductance property is used in a cost and space efficient ASIC incorporating a temperature and noise stabilized oscillator/counter circuit which is inherently free from offset drift.



Features

- High accuracy compass heading: 0.8°
- High resolution compass heading: 0.1°
- High repeatability: 0.1°
- Wide tilt range: ±50°
- Multiple measurement modes: compass heading, magnetic field and 2-axis tilt
- Calibrated magnetic field measurement range: ±80 μT (±0.8 Gauss)
- High resolution magnetic field measurement: 0.05 μT (±0.8 Gauss)
- Extended temperature range: -20° to 70°C
- Small size: 3.5 x 4.3 x 1.3 cm
- Reliable calibration: hard-iron calibration with quality of calibration score
- Low Power: <20 mA typical current draw
- RS-232 compatible digital interface

Applications

- ROVs/AUVs
- Remote terrestrial antenna direction indicators
- Side-scan sonar
- Survey equipment
- Robotics systems
- Vehicle detection
- Weather stations

Ordering Information

| Description | Part Number |
|-----------------------|-------------|
| TCM2.6 Module Only | 12606 |
| TCM2.6 Interface Kit | 90012 |
| TCM2.6 Evaluation Kit | 90019 |

Interface kit includes module, pigtail cable and evaluation software.

Evaluation kits includes module, pigtail cable, finished DB-9 cable with power and evaluation software.

Specifications

| Parameter | Typical | Units |
|-------------------------------------|-----------------------------------|-------------|
| Heading Specifications | | |
| Accuracy over tilt range | 0.8° | Deg RMS |
| Resolution | 0.1° | Deg |
| Repeatability ^[1] | 0.1° | Deg RMS |
| Max Dip Angle | 85° | Deg |
| Magnetometer Specifications | | |
| Calibrated Field Measurement Range | ±80 | μT |
| Magnetic Resolution | ±0.05 | |
| Magnetic Repeatability | ±.1 | |
| Tilt Specifications | | |
| Pitch Accuracy | 0.2° | Deg RMS |
| Roll Accuracy | 0.2° | |
| Tilt Range | ± 50° | Deg |
| Tilt Resolution | 0.1° | |
| Tilt Repeatability ^[1] | 0.1° | |
| Calibration | | |
| Hard Iron Calibration | Yes | |
| Soft Iron Calibration | No | |
| Mechanical Specifications | | |
| Dimensions (L x W x H) | 3.5 x 4.3 x 1.3 | cm |
| Weight | 12 | grams |
| Mounting Options | Screw Mounts/Standoffs horizontal | |
| Connector for RS-232 | 9-pin | |
| I/O Specifications | | |
| Latency from Power-On | < 50 | mSec |
| Latency from Sleep Mode | < 1 | |
| Maximum Sample Rate | 8 | samples/sec |
| RS-232 Communication Rate | 300 to 115200 | baud |
| Output Formats | TCM2 ASCII Protocol | |
| Power Specifications | | |
| Supply Voltage | 3.6 to 5 V (unregulated) | |
| Current Draw (continuous output) | Max: 22 Typ: <20 | mA |
| Idle Mode | 18 | |
| Sleep Mode | 0.6 | |
| Environmental Specifications | | |
| Operating Temperature | - 20 to 70 | |
| Storage Temperature | - 40 to 85 | |

[1] Repeatability is based on statistical data at ±3 sigma about the mean.

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