TCM 3

With greater accuracy than the TCM 2.6, soft-iron calibration, and extended tilt ranges of up to ± 80°, the TCM 3 is designed to provide high-resolution digital compass heading in almost any environment — and in a cost-effective, low-power package.

The TCM3 combines PNI's patented magneto-inductive sensors with a 3-axis MEMS accelerometer in a single temperature- and noise-stabilized ASIC that's inherently free of offset drift. And using its included hard- and soft-iron correction algorithms, the TCM3 calibrates out most magnetic anomalies for repeatable, high-resolution measurement across a wide range of navigation sensor and tracking applications.

3-AXIS MEASUREMENT

3D ORIENTATION

HARD-IRON CORRECTION

HIGH-RESOLUTION/ACCURACY

INTEGRATED PROCESSOR

MODULE

SOFT IRON CORRECTION

High Resolution Field Measurement
0.05 µT (0.0005 Gauss)

Low Power
< 20 mA typical draw

Compact Size
3.5 × 4.3 × 1.3 cm

Wide Temperature Range
−40 to 85 °C (operational)

High Precision
Heading accuracy 0.5°

High Resolution
Compass heading 0.1°

Wide Field Measurement Range
± 80 µT (± 0.8 Gauss)

Binary Digital Interface
RS-232

Extended Tilt Compensation
Up to ± 80°

Hard and Soft Iron Calibration
Customizable by user

Digital Interface
Binary

Full Tilt Compensation
± 80°

RoHS Compliant

Heading Specifications

Accuracy (RMS)	0.8° (Tilt < 80°) 0.5° (Tilt < 70°)
Max Dip Angle	85°
Repeatability (RMS) [1]	0.1°
Resolution	0.1°

Magnetometer Specifications

Calibrated Field Measurement Range	± 80 µT
Magnetic Repeatability	± 0.1 µT
Magnetic Resolution	± 0.05 µT

Tilt Specifications

Pitch Accuracy	0.2° RMS
Roll Accuracy (RMS)	0.2° (Pitch < 65°) 0.5° (Pitch < 80°)
Tilt Range	± 80°

Purchase Options

TCM 3 Module only	$996.00
TCM 3 Interface Kit Module, 18" pigtail cable, manual and evaluation software	$1,046.00
TCM 3 Evaluation Kit Module, 6' finished cable, 18" pigtail cable, manual and evaluation software	$1,096.00
TCM Evaluation Cable TCM 6' finished 9-pin cable	$75.00
TCM Pigtail Cable TCM 18" unfinished 9-pin cable	$50.00

Product Information

Specifications

Downloads

Datasheet | Manual
Application Notes | Software

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Tilt Repeatability[2]	0.01°
Tilt Resolution	0.01°

Calibration

Hard Iron Calibration	Yes
Soft Iron Calibration	Yes

Mechanical Specifications

Connector for RS-232 Interface	9-Pin
Dimensions (L × W × H)	3.5 × 4.3 × 1.3 cm
Mounting Options	Screw Mounts/Standoffs Horizontal
Weight	12 grams

I/O Specifications

Communication Rate	300 to 115200 baud
Latency from Power-On	< 50 ms
Latency from Sleep Mode	< 1 ms
Maximum Sample Rate	20 samples/sec
Output Formats	Binary High Performance Protocol

Power Specifications

Idle Mode[3]	14 to 18 mA
Sleep Mode Current Draw	0.6 mA
Supply Voltage (VDC)	3.6 to 5 V (Unregulated)
Typical Current Draw (Continuous Output)	Maximum: 22 mA Typical: < 20 mA

Environmental Specifications

Humidity	Non-condensing / Qualified to MIL-STD-810F
Operating Temperature Range	−40 to 85 °C
Shock	2500 *g*, per MIL-STD-810F
Storage Temperature Range	−40 to 125 °C
Vibration	Qualified to MIL-STD-810F

[1] Repeatability is based on statistical data at ± 3 sigma limit about the mean.
[2] Repeatability is based on statistical data at ± 3 sigma limit about the mean.
[3] Based on user settings.