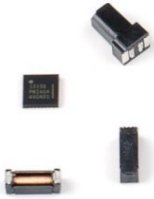# Product Catalog
Q4 - 2021

With over 30 years of experience, PNI is the world's foremost expert in precision location, motion tracking, and fusion of sensor systems into real-world applications.

RM3100 Sensor Suite

RM3100 is a 3-axis magnetic sensor suite driven by PNI's MagI2C ASIC interfaced through an I²C or SPI bus, eliminating the need for signal conditioning or an analog/digital converter. The RM3100 magnetic sensor is the highest performance sensor in its class with over 20 times better resolution and over 30 times lower noise than the leading Hall Effect sensor. Ideal for drones, robotics, VR, motion-tracking, and navigation.
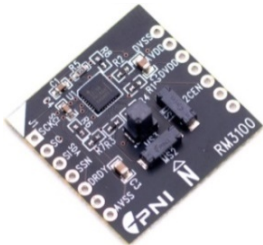
Part Number: 90053
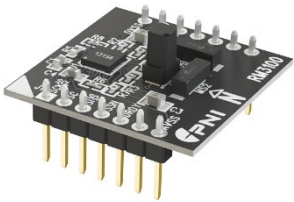
RM3100 Evaluation Board

The RM3100 Evaluation Board integrates PNI's magnetic sensors and MagI2C ASIC onto a single PCB. The Evaluation Board includes header pins for easy mounting.
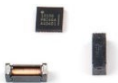
Part Number: 13606

RM3100 Breakout Board

PNI's RM3100 Breakout Board integrates PNI's 3-axis industry-leading magnetic sensor suite and MagI2C ASIC on a single PCB. This allows for easy testing and evaluation of our patented high-performance magnetic sensors.

Part Number: 14190

RM2100 Sensor Suite

RM2100 is a 2-axis magnetic sensor suite that contains two Sen-XY sensors driven by PNI's MagI2C ASIC interfaced through an I²C or SPI bus, eliminating the need for signal conditioning or an analog/digital converter. RM2100 enables 2D applications and is ideal for robotics and digital compass applications where pinpoint accuracy is critical.

Part Number: 90052

For complete product specifications, visit www.pnicorp.com

TargetPoint-TCM

TargetPoint TCM is a new product that incorporates magnetometers, accelerometers and gyroscopes for unmatched performance in real-world conditions. It features optional DMC or AHRS mode with magnetic anomaly rejection, new and improved user calibration for higher accuracy, and supports PNI's TCM and TRAX family interface protocols.

TargetPoint TCM combines PNI's high sensitivity Magneto-Inductive sensors with the latest high stability 3-axis MEMS accelerometer and 3-axis MEMS gyroscopes providing accurate orientation while in motion and in magnetically challenging environments. TargetPoint TCM excels in conditions that cause errors in traditional digital magnetic compasses.

It uses advanced magnetic distortion compensation and calibration scoring algorithms to counter the effects of hard and soft iron interference, providing highly accurate heading information in almost any environment and orientation.

Part Number: 14470

TargetPoint-SX
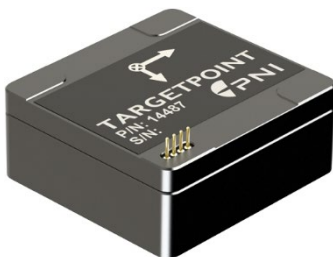
For laser rangefinder and targeting systems designers looking to replace the Vectronix® DMC-SX with an equivalent part, the TargetPoint SX is form, fit, and function compatible to the DMC-SX, requiring little or no work to design into existing systems.

TargetPoint-SX provides better heading accuracy and offers magnetic anomaly rejection.

Part Number: 14487

(Interface and evaluation kits are available)

For complete product specifications, visit www.pnicorp.com

TRAX2 Attitude & Heading Reference System (AHRS)

TRAX2 AHRS & digital compass module provides unparalleled heading accuracy – even when GPS is not available.

TRAX2 is the only orientation module that provides two different modes: AHRS or digital compass. TRAX2's dual-mode capability supports a wide range of applications including drones, robotics, ocean buoys, manned and unmanned vehicles, among others.

TRAX2 combines PNI's high sensitivity magneto-inductive sensors with a high stability 3-axis MEMS accelerometer to provide accurate heading information under a wide variety of conditions and the ability to overcome errors caused by changes in the local magnetic field. This provides no drift, high accuracy heading, pitch and roll and long-term static accuracy.

Part Number: 14387
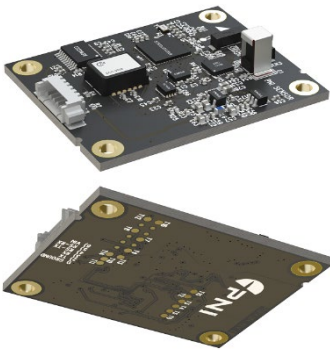
Trax2 Interface Kit

The TRAX2 Interface Kit consists of the TRAX2 module with manual and evaluation software, plus the PNI Molex-to-pigtail interface cable.
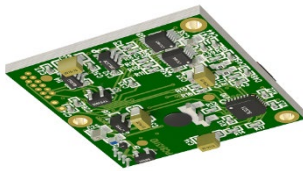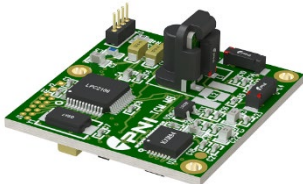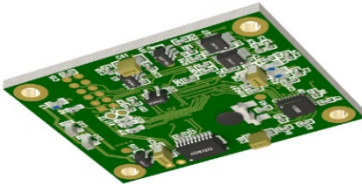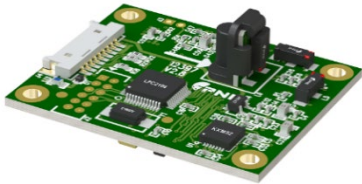
Part Number: 90108

Trax2 Evaluation Kit

The TRAX2 Evaluation Kits includes the TRAX2 module with manual and evaluation software, the PNI Molex-to-pigtail interface cable, and the PNI Molex-to-USB evaluation cable.

Part Number: 90107

(Interface and evaluation kits are available)

For complete product specifications, visit www.pnicorp.com

TCM-XB and TCM-MB

TCM-XB is a high-performance, low-power consumption, tilt-compensated electronic 6-axis digital compass module with $0.3°$ RMS heading accuracy. It incorporates PNI's advanced magnetic distortion compensation and calibration scoring algorithms to provide industry-leading heading accuracy. TCM-XB combines PNI's patented magneto-inductive sensors and measurement circuit technology with a 3-axis MEMS accelerometer for unparalleled cost effectiveness and performance.

For systems designers whose applications require consistency and accurate heading, pitch and roll in all latitudes globally, the TCM-XB and TCM-MB are tilt-compensated digital magnetic compasses that provide unparalleled cost-effectiveness and performance under a wide range of conditions.

Two form factors are available, the TCM-MB offers the same features and accuracy as the TCM-XB in a smaller footprint with TTL output.

Unlike other digital magnetic compasses, TCM-XB and TCM-MB with PNI's high sensitivity magnetic sensors provides accurate heading even at high and low latitudes where magnetic compassing signals are small, making accurate determination of heading difficult. The modules have multiple user calibration options to ensure that optimized performance can be achieved for all types of systems.
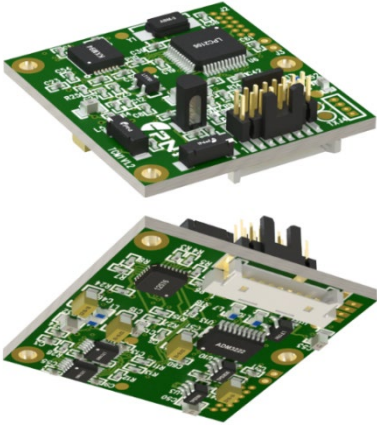
TCM-XB Part Number: 12810
TCM-MB Part Number: 13095

(Interface and evaluation kits are available)

For complete product specifications, visit www.pnicorp.com

Prime

Prime is a full-featured 6-axis digital compass designed for flexibility and adaptability — the perfect fit for sonobuoys, ADCPs, side scan sonar, low-cost robotics, and other cost- sensitive applications.

PNI's Prime provides pitch, roll, and compass heading everywhere, including where GPS is compromised or unavailable, such as underwater, underground, beneath bridges, or inside buildings. The low-power-consumption, low-cost Prime provides all-digital compass heading outputs accurate to 1 degree. It can be calibrated to account for magnetic distortions, and it offers several user programmable parameters, including output damping, reporting units, and sampling configuration.
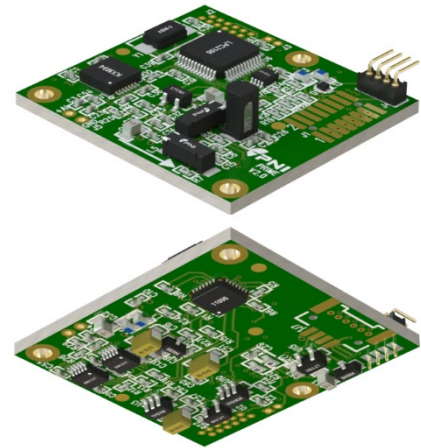
Prime supports RS232 output.

Part Number: 12826
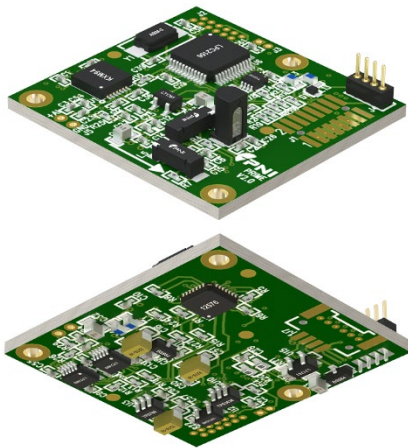
Prime TTL (formerly Prime RDI)

Prime TTL modules have a straight pin connector and supports TTL output.

Part Number: 12951

Prime TTL-RRA

Prime TTL-RA modules have a right-angle connector and supports TTL output.

Part Number: 14592

(Interface and evaluation kits are available)

For complete product specifications, visit www.pnicorp.com

PNI Motion & Measurement (M&M) Modules

For system designers looking for accurate motion tracking and Android sensor outputs, PNI's 9- and 10-axis motion and measurement modules are small form-factor boards that integrate PNI's high performance magnetic sensors, its low-power motion coprocessors with embedded sensor fusion algorithms and MEMS motion sensors. The PNI M&M modules simplify development with high accuracy embedded sensor fusion algorithms and allow developers to focus on creating innovative end-applications rather than the sensor fusion algorithms.

Unlike other inertial measurement units (IMUs) requiring extensive sensor fusion algorithm development and sensor calibration work, our M&M modules are pre-engineered to provide high accuracy motion tracking, heading and orientation – at a fraction of the power used by a general-purpose microprocessor.
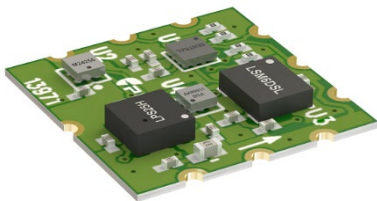
PNI M&M Blue 9-Axis module includes: SENtral, RM3100 Magnetic Sensor, and ST LSM330 Accel/Gyro.

Part Number: 13759
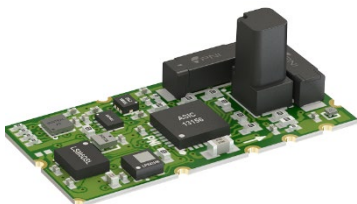
PNI M&M Amber 10-Axis module includes: SENtral-A2, RM3100 Magnetic Sensor, ST LSM6DSL Accel/Gyro and ST LPS25H Pressure sensor.
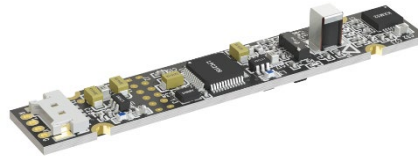
Part Number: 14047

PNI M&M Magenta 10-Axis module includes: SENtral-A2, AK09911C magnetometer and ST LSM6DS3 Accel/Gyro.

Part Number: 13971A2

For complete product specifications, visit www.pnicorp.com

SeaTRAX

The SeaTRAX 6-axis compass module is a high- performance heading sensor at an affordable price, great for width-constrained seismic streamers and towed arrays.

For seismic streamer makers who find current heading sensor offerings too expensive, PNI Sensor's SeaTRAX is a magneto-inductive heading sensor that provides reliable heading data at a practical cost.

Part Number: 13457

Legacy TCM

Legacy TCM boards combine PNI's patented magneto- inductive sensors and measurement circuitry with a 3- axis MEMS accelerometer for unparalleled cost effectiveness and performance, delivering exceptional accuracy and reliability.

Note: Legacy TCM products are not for new designs. For new designs, please evaluate TRAX2, TargetPoint-TCM and TargetPoint-SX.

TCM 2.5
Part Number: 12603

TCM 2.6
Part Number: 12604

TCM 3
Part Number: 12606

TCM 5
Part Number: 12608

(Interface and evaluation kits are available)

For complete product specifications, visit www.pnicorp.com

PNI 9-pin Molex Interface Cable

This interface cable is used with TCM-XB, TCM 2.6, TCM 3, TCM 5, and Prime. It is also used in the Interface Kits for these products. Part Number: 12415

PNI 9-pin Molex Serial Interface Cable

This cable is used in the Evaluation Kits for TCM-XB, and Prime. It has a serial connector on one end and a Molex connector for TCM on the other, with a AAA battery compartment for power. Part Number: 12651

SeaTRAX Serial Interface Cable

This cable is used in the Evaluation Kit for SeaTRAX. One end of the cable has a serial connection. The other end has a connector along with a AAA battery compartment for power designed for SeaTRAX. Part Number: 13509
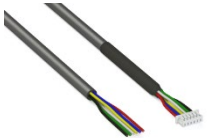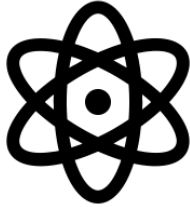
TRAX2 Molex-to-pigtail Interface Cable

This cable is used in the Interface Kit for TRAX2. Part Number: 14476

TRAX2 Molex-to-USB Evaluation Cable

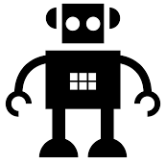This cable is used in the Evaluation Kit for TRAX2. Part Number: 14467

IoT

Scientific

Smart Parking

Robotics

Military

Consumer Electronics

Automotive

PNI's sensors and algorithms serve as the cornerstone of mission-critical applications where pinpoint location, accuracy, and low power consumption are essential.

Building on decades of patented sensor and algorithm development, PNI offers the industry's highest-performance geomagnetic sensor in its class, location and motion coprocessors, high-performance modules, sensor fusion algorithms, and complete sensor systems.

For complete product specifications, please visit www.pnicorp.com.