The GNSS Compass is a cost-effective all-in-one GNSS/INS navigation and heading solution. It provides accurate dual antenna GPS based heading that is not subject to magnetic interference and can maintain accurate heading during GNSS outages of up to 20 minutes. It features high accuracy RTK positioning and is plug and play with NMEA 0183, NMEA 2000 and Ethernet interfaces.

**PERFORMANCE**

- **0.4 ° Roll and Pitch**
- **8 mm RTK Positioning**
- **0.2 ° Heading**
- **7 °/hr MEMS Gyroscope**

**FEATURES**

**FULLY INTEGRATED NAVIGATION**

The GNSS Compass is a fully integrated wheelmark certified GPS/INS navigation and heading solution. It contains a 9 axis IMU that is integrated with a dual antenna GNSS system with high performance antennas. It provides higher heading accuracy than magnetic systems and does not require any calibration or setup. The system is plug and play for NMEA 0183 and NMEA 2000 integrations, requiring no setup or configuration.

**HIGH ACCURACY 8MM POSITIONING**

The high accuracy variant supports L1/L2 RTK to deliver real time position accuracy of 8mm. Both the high accuracy and low cost variant support PPK (post processing) to deliver 8mm position accuracy using the Kinematica post processing software. Both variants support all of the current and future satellite navigation systems including GPS, GLONASS, GALILEO and BeiDou.

**PERFORMANCE AND INTERFACE OPTIONS**

Four product variants are available to cater to every different application and budget. The low cost variant is an L1 only solution that is suitable for commercial vessel navigation while an L1/L2 variant meets the high accuracy requirements of surveying applications. It is also possible to choose between an NMEA 0183/NMEA 2000 interface and a Power over Ethernet interface for maximum flexibility. The Ethernet variant features NTP and PTP timing servers for precise time synchronization.

**MINIMIZED SIZE, WEIGHT AND PRICE**

The GNSS Compass dramatically reduces the size weight and cost of attaining a high accuracy position and heading solution. In addition the plug and play functionality of the device means that anyone can install it in minutes.
## SPECIFICATIONS

### NAVIGATION (low cost variant)
- **Horizontal Position Accuracy**: 2.0 m
- **Vertical Position Accuracy**: 3.0 m
- **Horizontal Position Accuracy (with DGNSS)**: 0.6 m
- **Vertical Position Accuracy (with DGNSS)**: 1.0 m
- **Horizontal Position Accuracy (Kinematica post-processing)**: 0.01 m
- **Vertical Position Accuracy (Kinematica post-processing)**: 0.02 m
- **Velocity Accuracy**: 0.05 m/s
- **Roll & Pitch Accuracy**: 0.4 °
- **Heading Accuracy**: 0.2 °
- **Roll & Pitch Accuracy (Kinematica post-processing)**: 0.13 °
- **Heading Accuracy (Kinematica post-processing)**: 0.09 °
- **Heave Accuracy (whichever is greater)**: 5 % or 0.05 m
- **Hot Start Time**: 500 ms
- **Internal Filter Rate**: 100 Hz
- **Output Data Rate**: Up to 100 Hz

### GNSS (low cost variant)
- **Model**: 2 x u-blox M8T
- **Supported Navigation Systems**: GPS L1, GLONASS G1, GALILEO E1, BeiDou B1
- **Update Rate**: 10 Hz
- **Acceleration Limit**: 4 g
- **Hot Start Time**: 1 second

### HARDWARE (Ethernet variant)
- **Power Input**: Power over Ethernet (PoE)
- **Power Consumption (Low Cost Variant)**: 11 Watts
- **Power Consumption (High Accuracy Variant)**: 2.4 Watts
- **Hot Start Battery Capacity**: > 24 hrs
- **Hot Start Battery Charge Time**: 30 mins
- **Hot Start Battery Endurance**: 10 years
- **Operating Temperature**: -40 °C to 85 °C
- **Environmental Protection**: IP68, MIL-STD-810G
- **Shock Limit**: 75 g
- **Dimensions**: 672 x 190 x 73.9 mm
- **Weight (Low Cost Variant)**: 1460 grams
- **Weight (High Accuracy Variant)**: 1530 grams

### COMMUNICATION (Ethernet variant)
- **Interface**: Ethernet
- **Speed**: 10/100
- **Protocol**: NMEA0183, AN Packet Protocol, TSS1, Simrad
- **Ports**: Up to 4 TCP or UDP ports
- **Timing**: PTP Server, NTP Server
- **Timing Accuracy (PTP)**: 50 ns
- **Timing Accuracy (NTP)**: 1 ms

### NAVIGATION (high accuracy variant)
- **Horizontal Position Accuracy**: 0.8 m
- **Vertical Position Accuracy**: 1.5 m
- **Horizontal Position Accuracy (with RTK)**: 0.008 m
- **Vertical Position Accuracy (with RTK)**: 0.015 m
- **Horizontal Position Accuracy (Kinematica post-processing)**: 0.008 m
- **Vertical Position Accuracy (Kinematica post-processing)**: 0.015 m
- **Velocity Accuracy**: 0.02 m/s
- **Roll & Pitch Accuracy**: 0.4 °
- **Heading Accuracy**: 0.2 °
- **Roll & Pitch Accuracy (Kinematica post-processing)**: 0.13 °
- **Heading Accuracy (Kinematica post-processing)**: 0.09 °
- **Heave Accuracy (whichever is greater)**: 5 % or 0.05 m
- **Hot Start Time**: 500 ms
- **Internal Filter Rate**: 200 Hz
- **Output Data Rate**: Up to 200 Hz

### GNSS (high accuracy variant)
- **Model**: Trimble MB-Two
- **Supported Navigation Systems**: GPS L1, L2, GLONASS G1, G2, GALILEO E1, E5b, BeiDou B1, B2
- **Update Rate**: 20 Hz
- **Acceleration Limit**: 11 g
- **Hot Start Time**: 3 seconds

### HARDWARE (Serial Variant)
- **Operating Voltage**: 9 to 36 V
- **Input Protection**: -40 to 60 V
- **Power Consumption (Low Cost Variant)**: 12 Watts
- **Power Consumption (High Accuracy Variant)**: 2.64 Watts
- **Hot Start Battery Capacity**: > 24 hours
- **Hot Start Battery Charge Time**: 30 mins
- **Hot Start Battery Endurance**: 10 years
- **Operating Temperature**: -40 °C to 85 °C
- **Environmental Protection**: IP68, MIL-STD-810G
- **Shock Limit**: 75 g
- **Dimensions**: 672 x 190 x 73.9 mm
- **Weight (Low Cost Variant)**: 1480 grams
- **Weight (High Accuracy Variant)**: 1550 grams

### COMMUNICATION (Serial Variant)
- **Interface**: RS422 or RS232 CAN bus
- **Speed**: 2400 to 1M baud
- **Protocol**: NMEA0183, NMEA2000, AN Packet Protocol, TSS1, Simrad
- **Timing**: 1PPS Output
- **Timing Accuracy**: 20 ns