Garmin 010-02407-00

Garmin MSC 10 Marine Satellite Compass

User Manual

Model: 010-02407-00

Product Overview

The Garmin MSC 10 Marine Satellite Compass is a GPS-based heading sensor designed for marine applications. It provides precise heading, position, and motion data to your onboard systems, enhancing navigation and autopilot performance.

Key features include:

- Built-in attitude and heading reference system to filter and smooth GPS-derived heading.
- Seamless transition from GPS-based to magnetometer-based heading if satellite signal is lost (magnetometer calibration required for backup magnetic heading support).
- Accurate heave information delivered to your chartplotter via the NMEA 2000 network.
- Multi-band GNSS (L1 and L5 GPS) receiver for position accuracy within 1 meter and heading accuracy of 2-degree RMS in dynamic situations.
- Functions as the primary sensor for autopilots and other onboard systems requiring accurate heading.
- Compatibility with multiple satellite constellations for faster, more reliable positioning.
- Compact design and simple installation with no calibration required, unless using magnetometer-based heading.
- Easy integration into your Garmin marine ecosystem.
- 10 Hz position update rates for high-sensitivity tracking.

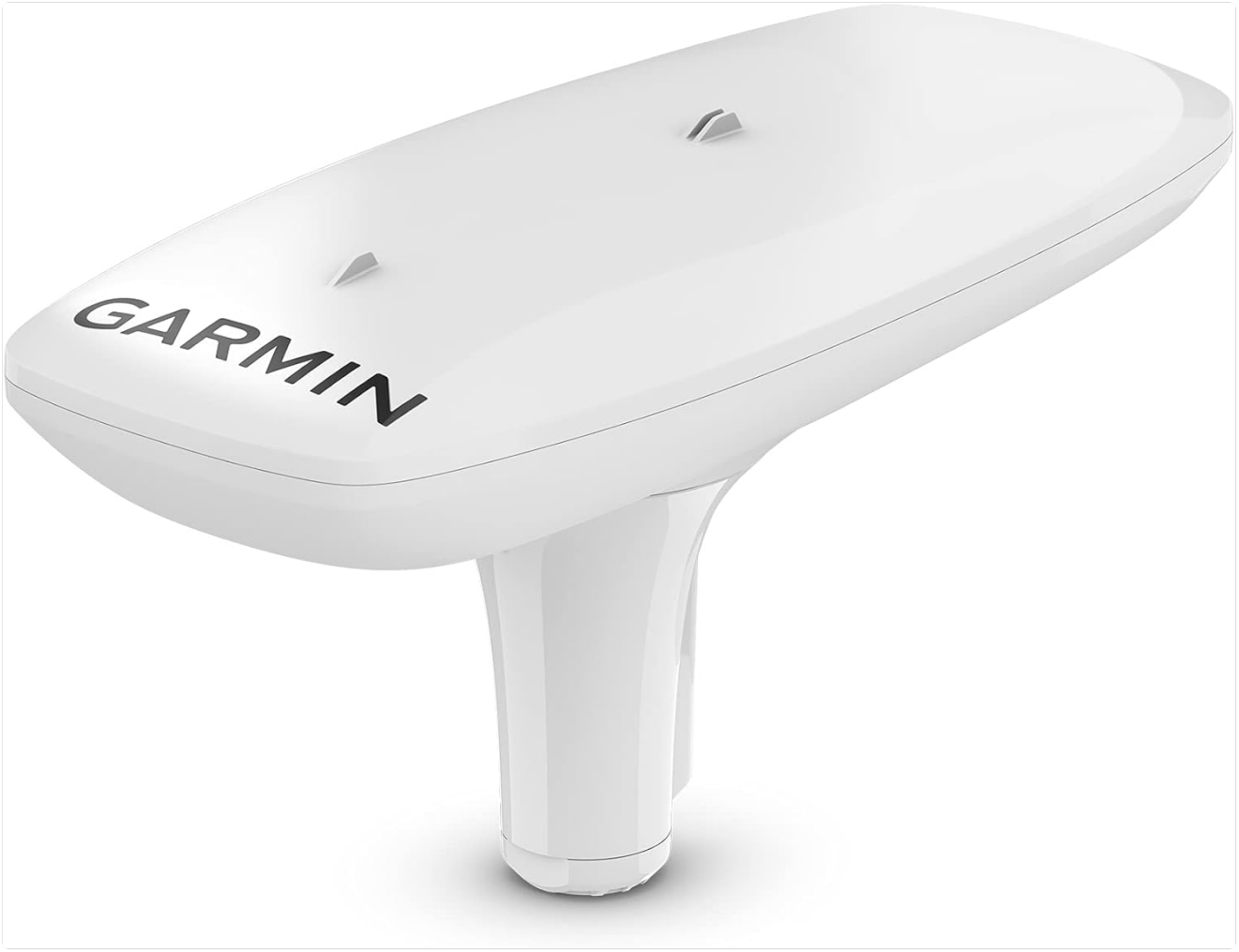

Figure 1: The Garmin MSC 10 Marine Satellite Compass, a compact white unit designed for marine environments.

Setup and Installation

The MSC 10 is designed for straightforward installation. Ensure you have all components listed in the "What's in the Box" section before beginning.

What's in the Box

- MSC™ 10 Marine Satellite Compass
- Pole mount
- Mounting hardware
- NMEA 2000® backbone/drop cable (6 meters)
- NMEA 2000 T-connector
- Documentation

Mounting Considerations

Select a mounting location that provides a clear, unobstructed view of the sky for optimal satellite reception. Avoid mounting near large metallic objects or other electronic devices that could cause interference. The unit can be pole-mounted or surface-mounted using the provided hardware.

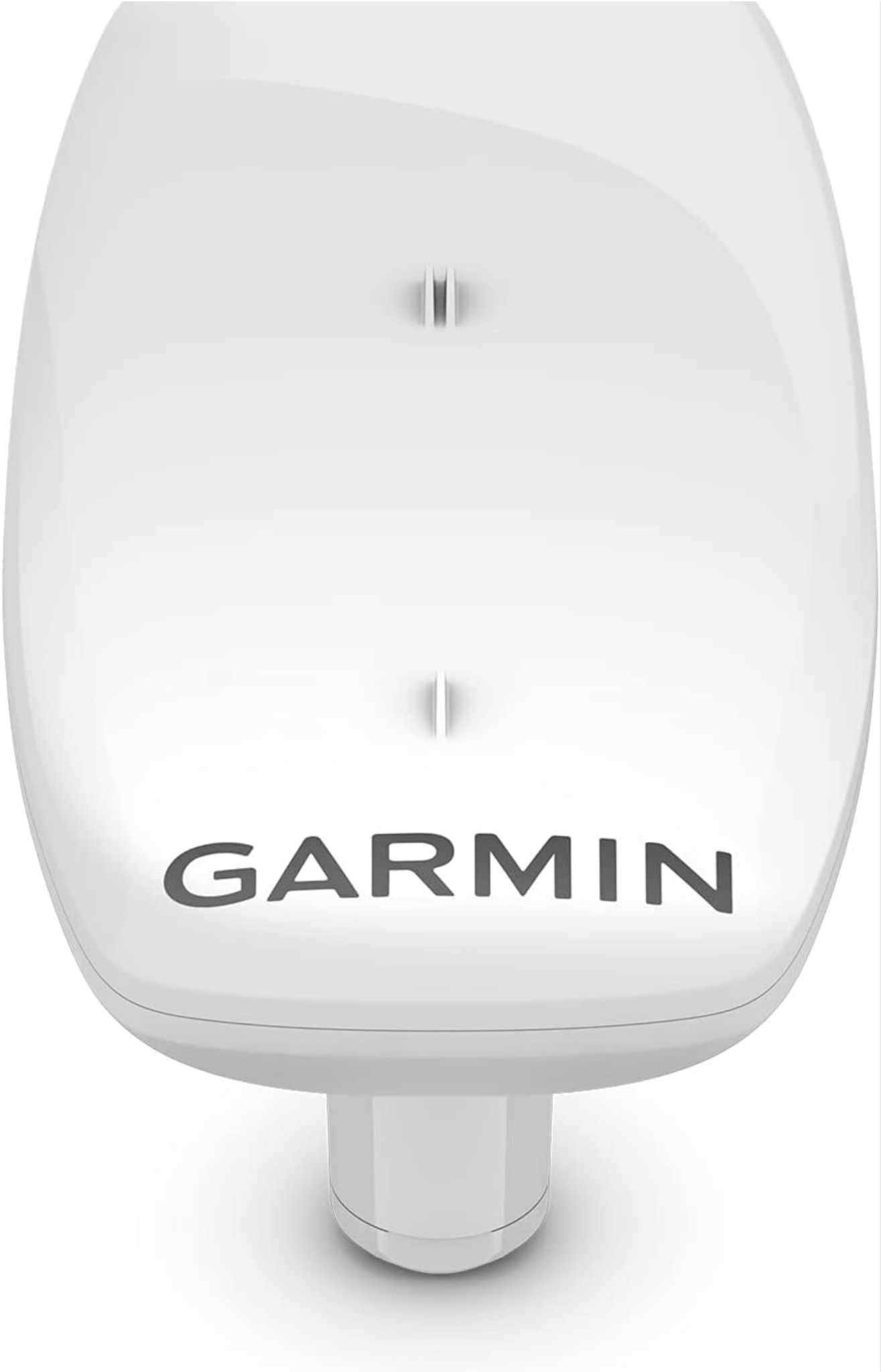
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Figure 2: Top view of the MSC 10, showing its compact design suitable for various mounting options.

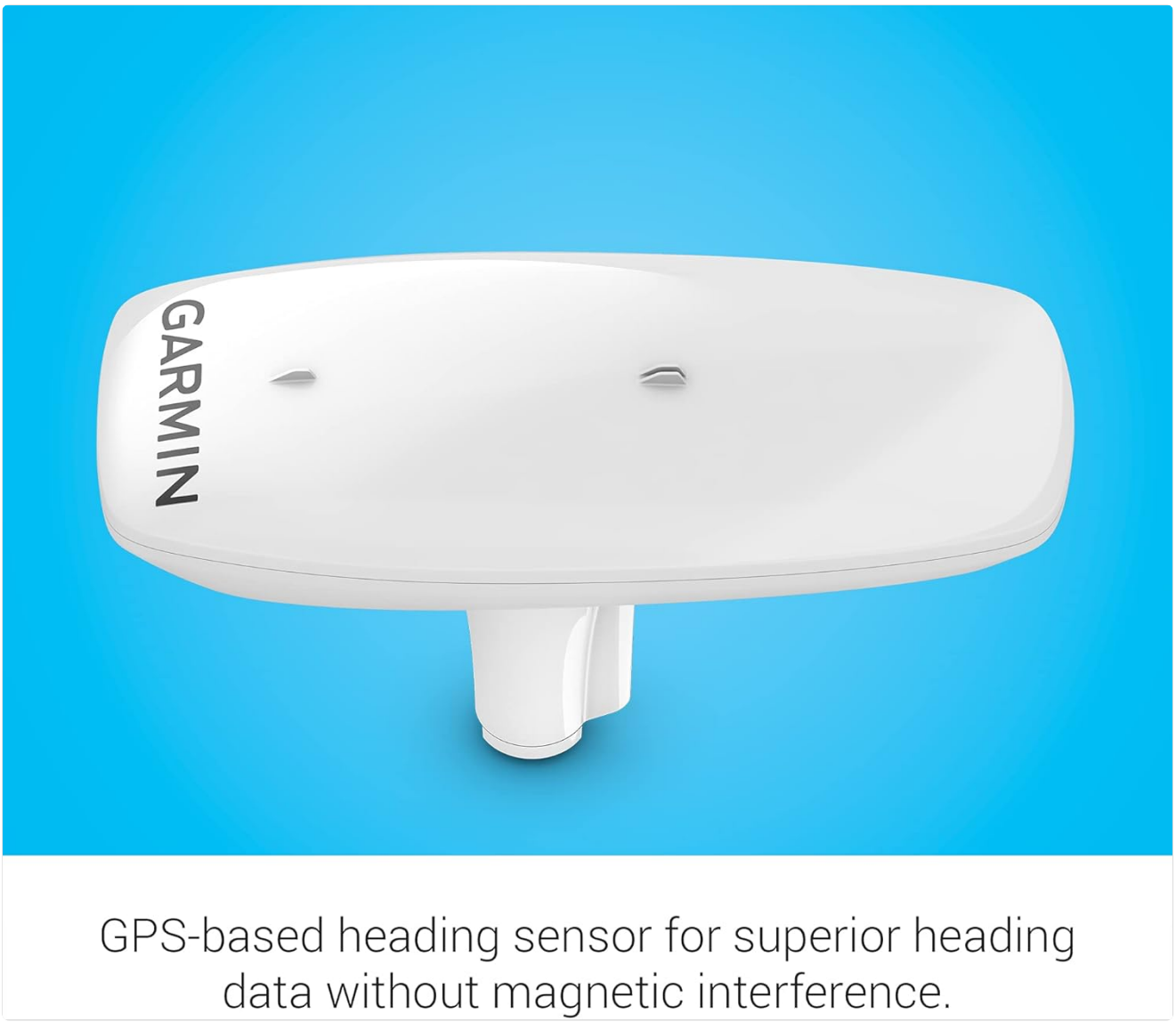

Figure 3: Side view of the MSC 10, illustrating its profile for installation planning.

NMEA 2000 Network Connection

The MSC 10 connects to your vessel's NMEA 2000 network using the supplied cable and T-connector. Ensure the network is properly terminated and powered. This connection allows the compass to communicate heading, position, and heave data to compatible chartplotters, autopilots, and other NMEA 2000 devices.

For detailed NMEA 2000 network setup, refer to your vessel's NMEA 2000 documentation or consult a certified marine electronics technician.

Operation

Once installed and connected, the MSC 10 automatically begins acquiring satellite signals and calculating heading and position data. No initial calibration is typically required for GPS-based heading.

GPS-Based Heading and Positioning

The MSC 10 utilizes multi-band GNSS (L1 and L5 GPS) and multiple satellite constellations to provide highly accurate and stable heading information. This GPS-based approach ensures heading data is not affected by

magnetic interference, which can be common on vessels.

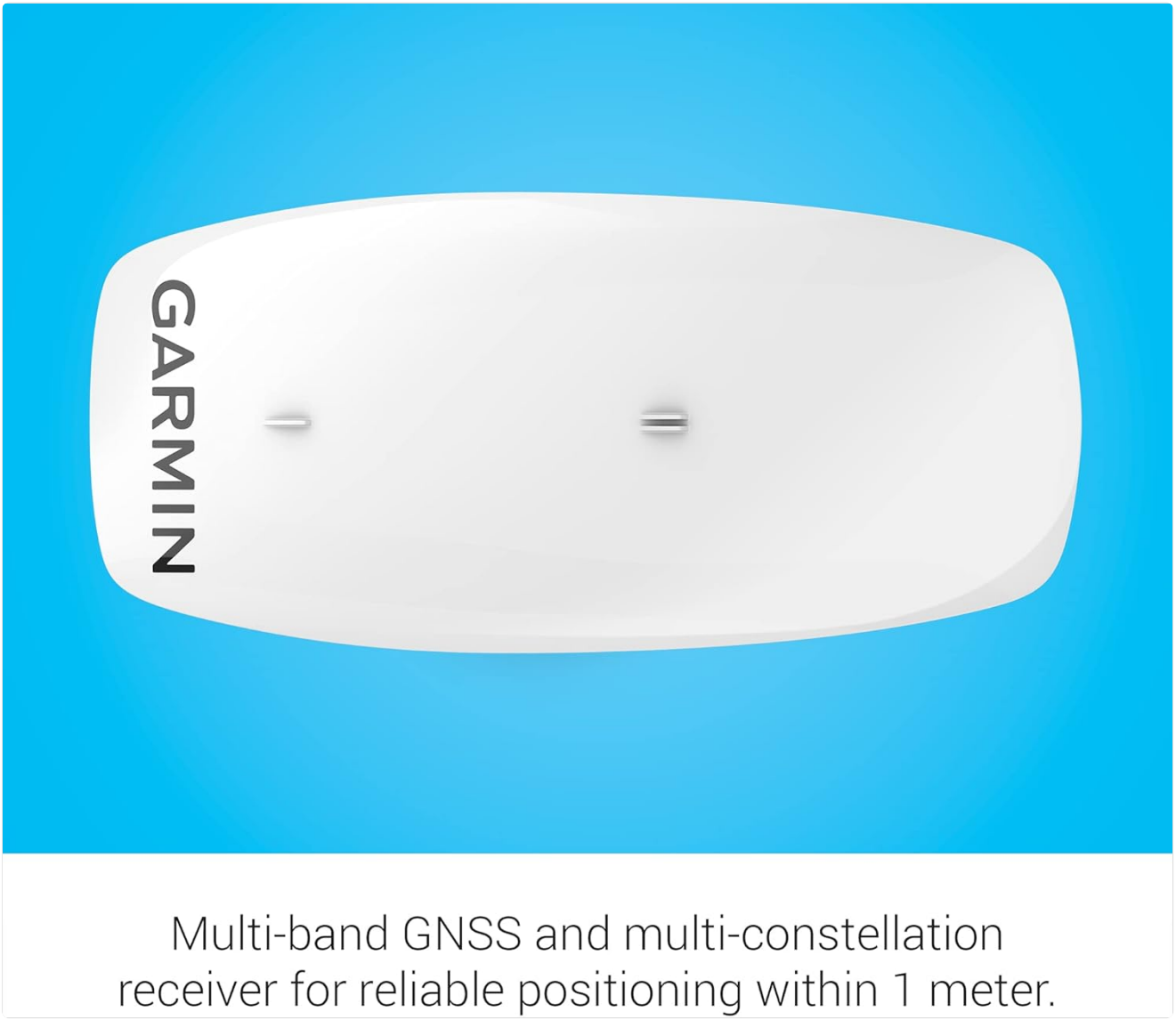

Figure 4: The MSC 10 functions as a GPS-based heading sensor, providing superior heading data without magnetic interference.

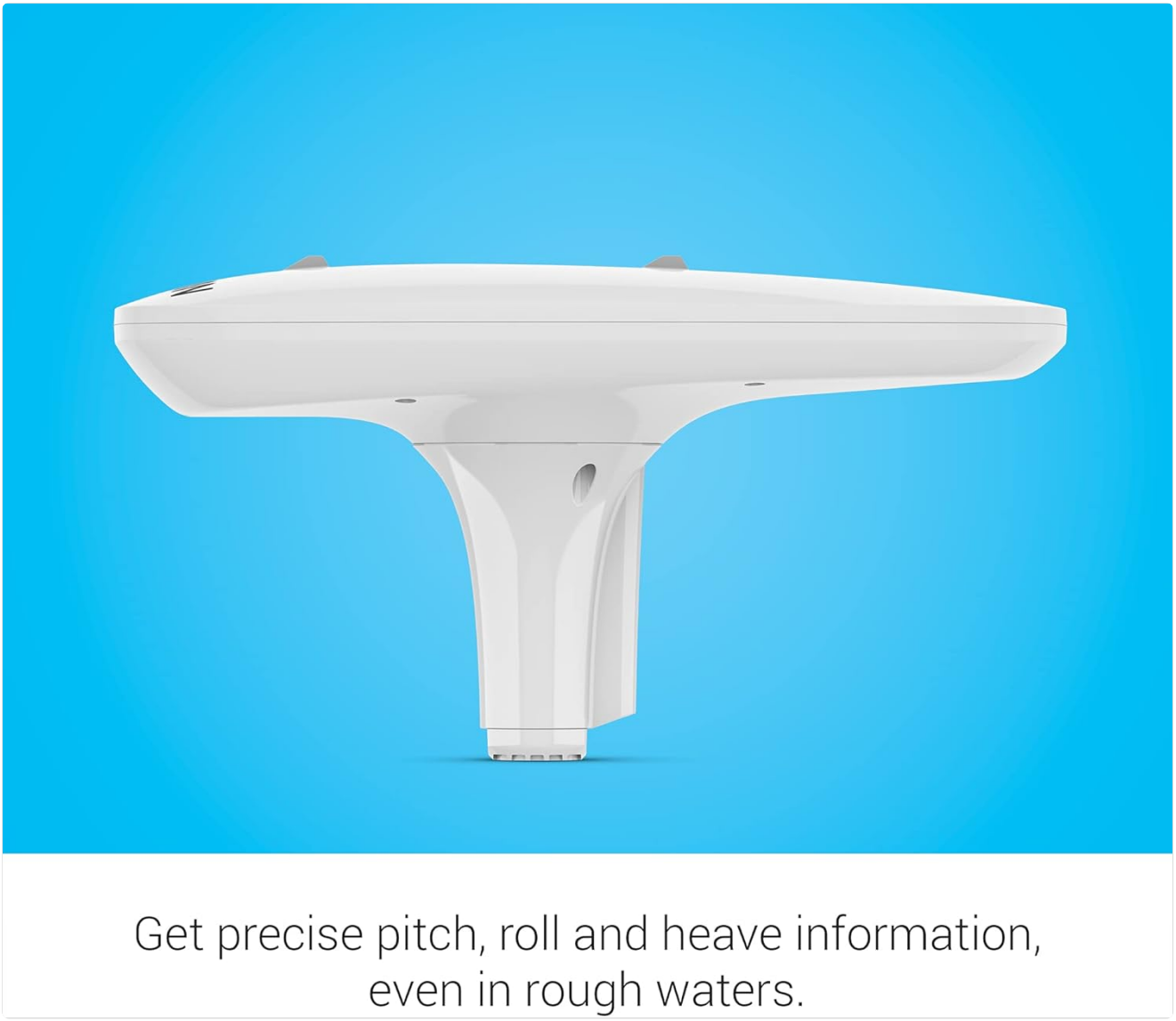

Figure 5: The multi-band GNSS and multi-constellation receiver of the MSC 10 ensures reliable positioning within 1 meter.

Heave Information

The integrated attitude and heading reference system (AHRS) allows the MSC 10 to provide precise heave information, which is crucial for accurate sonar readings and other applications, especially in rough water conditions.

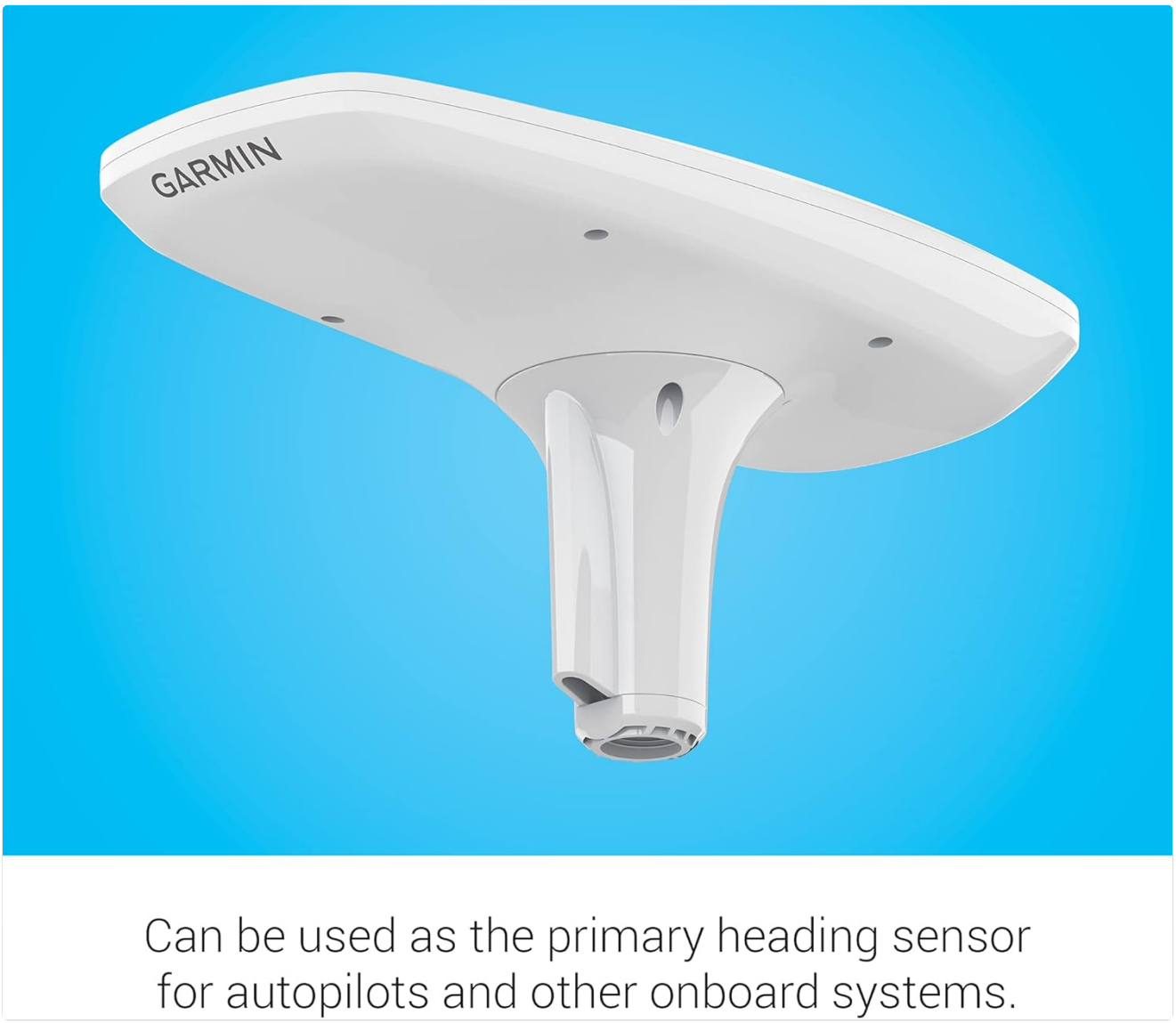

Figure 6: The MSC 10 delivers precise pitch, roll, and heave information, even in rough waters, enhancing data accuracy for connected systems.

Integration with Autopilots and Other Systems

The MSC 10 can serve as the primary heading sensor for compatible autopilots and other marine electronic systems that require accurate heading data. Its 10 Hz position update rate ensures high-sensitivity tracking for dynamic situations.

Maintenance

The Garmin MSC 10 is designed for durability in the marine environment and requires minimal maintenance.

- **Cleaning:** Periodically clean the exterior of the device with a soft, damp cloth. Avoid using harsh chemicals or abrasive cleaners that could damage the casing.
- **Inspection:** Regularly inspect the mounting hardware and cable connections for any signs of wear, corrosion, or looseness. Ensure all connections are secure to maintain optimal performance.
- **Software Updates:** Check the Garmin website periodically for any available software updates for the MSC 10. Keeping the software updated ensures you have the latest features and performance enhancements.

Troubleshooting

If you encounter issues with your MSC 10, consider the following common troubleshooting steps:

- **No Heading Data:**
  - Ensure the device has a clear view of the sky and is not obstructed by large structures.
  - Verify the NMEA 2000 network is powered and the MSC 10 is properly connected.
  - Check for any loose or corroded cable connections.
- **Inaccurate Heading:**
  - Confirm the mounting location is free from magnetic interference (e.g., large metal objects, strong electrical currents). While GPS-based heading is less susceptible, extreme interference can still affect performance.
  - If using magnetometer-based heading as a backup, ensure it has been properly calibrated. Refer to the detailed product documentation for calibration procedures.
- **Loss of Satellite Signal:**
  The MSC 10 is designed to seamlessly transition to magnetometer-based heading if the satellite signal is lost. If this transition does not occur or the backup heading is inaccurate, ensure the magnetometer has been calibrated. Re-establish a clear view of the sky for GPS signal reacquisition.
- **Device Not Powering On:**
  - Check the NMEA 2000 network power supply.
  - Inspect the NMEA 2000 cable and T-connector for damage.

For further assistance, consult the full Garmin MSC 10 installation instructions and owner's manual available on the Garmin support website, or contact Garmin customer support.

Specifications

Feature	Detail
Model Name	010-02407-00
Product Dimensions	6.1 x 13.1 x 3 inches
Item Weight	1.94 pounds
Connectivity Technology	NMEA 2000®
Special Features	Waterproof
Color	White
Manufacturer	Garmin
Vehicle Service Type	Boat
Position Update Rate	10 Hz
Position Accuracy	Within 1 meter (Multi-band GNSS)

Heading Accuracy	2-degree RMS (dynamic situations)

Warranty and Support

For warranty information and technical support, please visit the official Garmin support website or contact Garmin customer service directly. Keep your purchase receipt and product serial number handy for any warranty claims or support inquiries.

Garmin Support: www.garmin.com/support