

Company: Orca Technologies AS  
Product Name: Orca Core  
Model Number: 0000002F140F4D11  
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FCC-ID:2A799-ORCA

## Orca Core

The Orca Core is a Smart Navigation Hub that turns your tablet and phone into true chartplotters.



## In brief

**The Smart Navigation Hub** - Orca Core connects wirelessly to your Orca App and upgrades it to a true chartplotter.

**High-precision navigation** - The built-in GPS and Motion Processor makes for an accurate and reliable navigation experience.

**Boat Connected** - Compatible with thousands of NMEA 2000 devices, from transducers to wind sensors and engine gateways.

**Wireless Autopilot** - Control autopilots from all major manufacturers.

**Multiscreen Experience** - Use it with all your devices, seamlessly synced and ready for your next adventure.

## Product Description

At Orca, we are building a navigation device for recreational boaters. It consists of software and three individual hardware components: A tablet, docking station, and a sensor hub - Orca Core.

- The Orca Core is a proprietary hardware module that runs on a Variscite SOM and has a built-in GPS receiver, 9-axis IMU with an integrated compass.
- The Orca Core integrates with other boat sensors such as a GPS antenna, AIS receiver, transducers, autopilots, and wind sensors over a CANBUS interface called NMEA 2000.
- The Orca Core broadcasts the sensor data via WiFi or Bluetooth to connected devices; either the Orca Tablet or a personal mobile or tablet device running the Orca Application.
- The Orca Core has an Ethernet interface for future use cases - connecting with the radar system aboard.
- The Orca Core also has internal processing and storage capabilities that allow it to record, process, and package sensor data for transfer to a client device so it can be uploaded to the Orca Cloud.

The Orca Sensor Hub has no batteries. It needs to be always powered by the boat network. The input power to the sensor hubs comes from the general boat electric network. It changes from boat to boat, but it typically consists of a 12V or 24V network controlled by the main switch.

## Functionality

**GPS** - Orca Core is precision-engineered for accurate and reliable navigation. With a location accuracy of less than 3 meters, the Core is twice as accurate as a traditional chartplotter, and four times more accurate than your phone and tablet<sup>1</sup>.

**Integration with boat devices** - The Core connects to thousands of devices, from transducers to wind sensors and engine gateways via NMEA 2000. Set up flexible instrument panels on your phone and tablet, and tailor each instrument just the way you want – with perfect legibility day and night.

**Sailing Intelligence** - Orca Core's built-in motion processor powers advanced sailing instrumentation and next-generation sailing intelligence. Motion Compensated Instruments, Dynamic Filtering, and Adaptive Laylines help you take better decisions in demanding conditions.

**Autopilot remote control** - Use your phone and tablet as an autopilot remote to control your boat wirelessly. Orca supports full autopilot control for all major autopilot manufacturers.

**Multiscreen support** - The Core supports up to five simultaneously connected devices – giving you limitless freedom to navigate the way you like it. All devices are seamlessly synced, even when you are offshore and outside internet coverage.

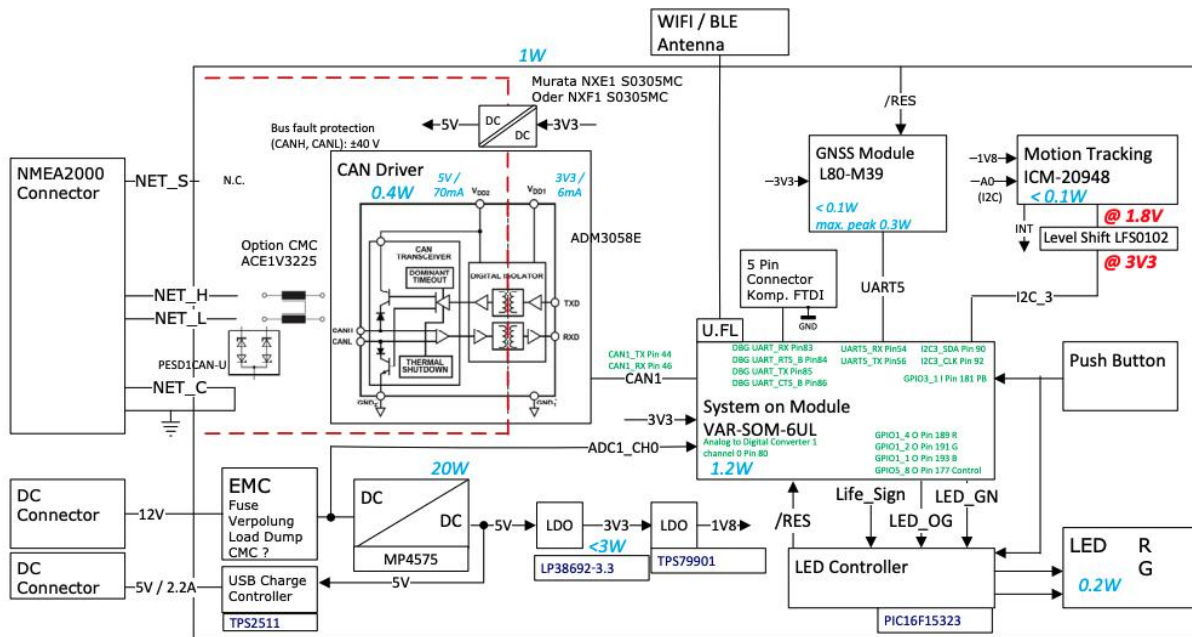
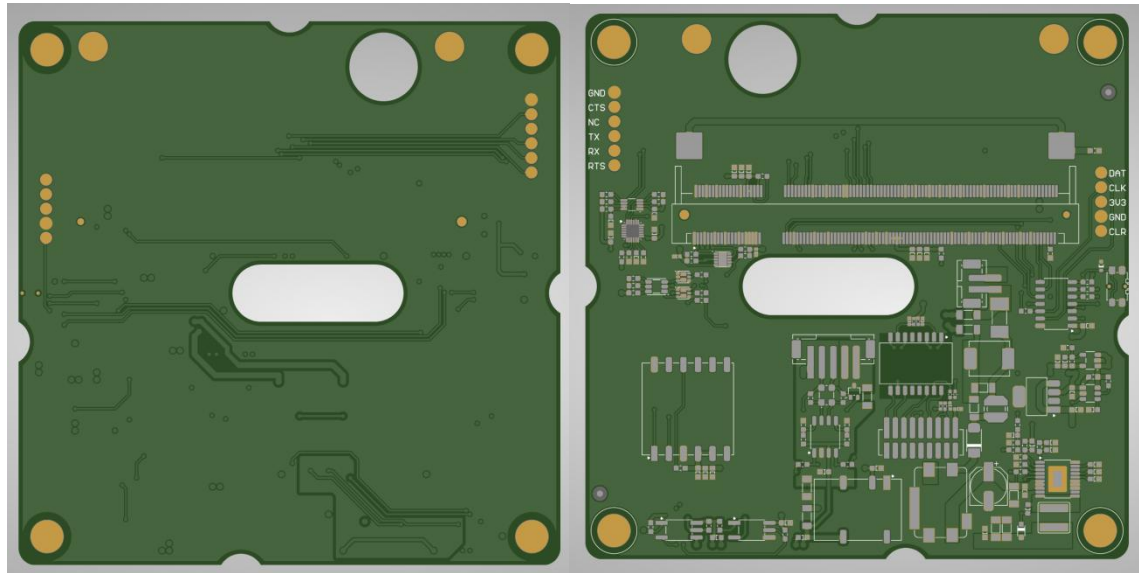
**Easy installation** - The Core is designed for easy installation and integration with your existing electronics. Orca's installation team is available for assistance via chat and video before and during installations.

**Hybrid AIS** - Orca is the world's first navigation system with Hybrid AIS. Hybrid AIS augments AIS data from your onboard AIS receiver with internet-based AIS to give you extended range, photos, and detailed voyage information for target vessels.

## Tech information

- Size: 118 x 118 mm footprint. 35 mm height + 15 mm with mounting bracket
- Mounting options: Drill-through mounting bracket and industrial grade 3M bonding tape
- Internal sensors: 9-axis inertial motion unit, compass & 10Hz GNSS receiver
- Wireless connectivity: WiFi 2.4GHz and Bluetooth 4.2
- Physical connectors: 1x NMEA2000 Micro-C port (1 LEN), 1 x M12 Ethernet connector
- Processor: 800MHz single core ARM
- Storage and RAM: 8 GB internal storage, 512 MB SDRAM
- Power: 9-32.2 V DC supply voltage. Approximately 200mA consumption
- Operating temperature: -15 to 60 °C
- Waterproofing: IPX6

# Electrical & Block Diagram



## FCC Warning Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by the manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### RF Exposure Information

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

## Product Guide

This is an online document. Check here: <https://getorca.com/overview>