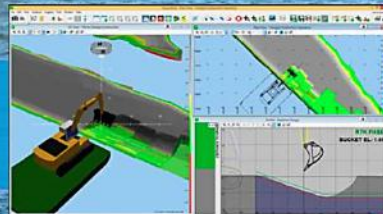




≡ Marine Positioning Solutions



Accurate, reliable efficient
marine solutions



Receivers, Sensors & Antennas

Trimble Marine offers a range of ruggedly dependable GNSS receivers, sensors and antennas to meet unique marine positioning requirements, a selection of which are shown here.

MPS865



The MPS865 is a highly versatile, rugged and reliable GNSS positioning solution ideal for marine construction and survey. With a modular form factor, it is flexible and can be used as an integrated on-board rover receiver, onshore land rover, base station, or CORS. The built-in precise heading feature ensures the receiver is of minimal size, consumes less power and has less cabling. **Features** include 480-channel tracking; dual GNSS antenna inputs for heading; maximum connectivity with Bluetooth, wi-fi, UHF radio, cellular modem and 2 MSS L-band channels; multi constellations; and beacon support (when coupled with the Marine [GA830 antenna](#) it receives beacon signals to deliver sub-meter accuracy horizontal positioning).

SPS986



The SPS986 GNSS Smart Antenna is small and rugged, and as a GNSS rover system or as a base station the SPS986 does it all. This smart antenna can also utilise more GNSS constellations, satellites and signals than traditional GPS, so it delivers greater accuracy in more challenging conditions, meaning more uptime and more productivity. **Features** include unprecedented strength and durability in a compact form; longer battery life; sensor onboard showing verticality on field controller screen; advanced R-Track technology; tilt compensation; and more flexibility of operation techniques.

SPS361/461



The SPS361 and SPS461 GPS Heading and Positioning Receivers are modular, dual-antenna systems for marine construction and hydrographic survey, including precise placement of piles, bridges, caissons, offshore drilling rigs and coastal defences – providing dredge head positioning, vessel positioning, vessel heading, and pitch or roll. **Features** include high-precision, dual-frequency GPS heading with fast initialisation; data to easily determine the position of other sensors on a vessel; rapid deployment and easy integration; and support for a range of correction services.

SPS855 & SPS555H



The SPS855 is a reliable and easy to use base station solution, and with its monitoring and alerts, internal radio and rover capability, the SPS855 can meet all needs. **Features** include a highly reliable, versatile and modular design; useable in a variety of locations as a base station or rover; remote monitoring and alerts to eliminate downtime; optional Trimble xFill technology; and full upgradeability. The SPS855 can also be paired with the SPS555H modular add-on GNSS receiver for exact heading information for construction projects that require precise orientation of a structure, vehicle or vessel.

Dredge Head & Cable Payout Meters



Used together with Trimble Marine GNSS hardware and software, dredge head and cable payout meters improve precision and productivity. The dredge head meter improves productivity of trailer hopper and cutter suction dredge types - using compressed air to measure the head of water, the meter accurately detects dredge head depth. The cable payout meter improves productivity of underwater dredging and structure placement by accurately measuring load location. With the precise data generated by these meters it can be seen exactly where material should be dredged or placed.





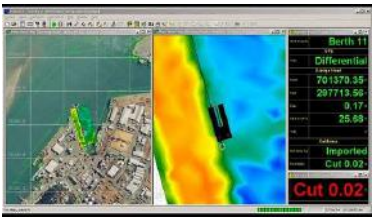
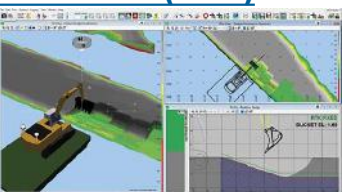
Zephyr 3s



Zephyr 3 antennas are rugged and durable, with millimetre accuracy, and offer full support for current and near-future GNSS signals including GPS, GLONASS, Galileo, BeiDou, OmniSTAR, RTX, and SABS. Within the range is the Zephyr 3 Rugged, designed for high vibration and shock environments; Zephyr 3 Rover, optimised for precision RTK and roving; and Zephyr 3 Base, ideal for all base station applications. **Features** include comprehensive GNSS support; robust low-elevation satellite tracking; minimised multipath; sub-millimetre phase center repeatability; and additional Iridium and Japanese LTE filtering.

≡ Total Stations, Controllers & Software

To compliment their high quality Marine GNSS receivers, sensors and antennas, Trimble delivers innovative Marine software. Moreover, Trimble Marine offers further high performance hardware in the form of total stations and field controllers, a selection of which are shown here.

<p><u>SPS730/930</u></p> 	<p>Trimble universal total stations SPS730 and SPS930 lead the industry in accuracy, reliability and range for fine grading, stockpile scanning, paving and site measurements. Patented Trimble technology ensures the best performance on jobs that need the tightest precision with the fastest update rate available. Features include long life integrated batteries; Bluetooth and 2.4 GHz radio; Servo, Autolock, Robotic, Reflectorless and ATS Grade Control operation modes; DR300+ long-range reflectorless measurement; MultiTrack, SurePoint and MagDrive servo technology; 20 Hz update rate; and 3 Hz DR scanning.</p>
<p><u>SPS620/720</u></p> 	<p>SPS620 and SPS720 robotic total stations offer very high accuracy and reliability for positioning, measurement and stakeout, and deliver all-round capability, unmatched user experience and incredible results. Both models are well suited for tasks on smaller worksites or paired with GNSS on big sites, measuring inaccessible/dangerous locations, and where construction may affect movement of ground or structures. Features include long life batteries; automatic functions; MultiTrack and MagDrive servo technology; DR Standard long-range reflectorless measurement; and internal radio operating in the 2.4 GHz band.</p>
<p><u>T7 & T10</u></p> 	<p>Trimble T7 (7 inch) and T10 (10.1 inch) tablets are rugged, portable and fully connected field computers for construction measurements and site positioning. With IP65 protection from dust and water, and military grade MIL-STD-810G certification for temperature, altitude, humidity extremes, vibration and shock, these tablets can withstand the harshest of conditions. Both are designed to perform a variety of tasks when combined with Trimble software and a GNSS receiver or total station. Features include sunlight readable display; multi-touch screen; hot-swappable long-life batteries; and Windows 10 Pro OS.</p>
<p><u>TSC7</u></p> 	<p>The TSC7 is the most advanced Marine controller, with a bigger screen and powerful processing you're carrying all the potential of a laptop in your hand. The TSC7 is flexible, powerful and rugged, and whether using a total station or GNSS, it gives total control over work site tasks. It is especially useful for construction surveyors, utility locators, site engineers and grade checkers. Features include a military-spec rugged design; 7 inch multi-touch screen; sunlight readable display; Windows 10 Pro OS; Intel Pentium processor; comprehensive connectivity; front and rear cameras; and hot-swappable long-life batteries.</p>
<p><u>HYDROpro</u></p> 	<p>HYDROpro software offers specialised tools for hydrographic survey and marine construction projects such as rig and barge positioning, piling, and dredging that require precise positioning. All in all this software provides a complete 'field to finish' system and allows projects to be completed faster, safer and more economically than with conventional methods. Features include easy of use and learning; support of multiple sensor inputs; direct data storage into a single database; and graphical data cleaning.</p>
<p><u>Trimble Marine Construction (TMC)</u></p> 	<p>TMC software improves productivity and efficiency in underwater applications including crane operations, piling, hydrographic survey and dredging. TMC is highly configurable and provides accurate 3D visualisation to assist with underwater tasks. Features include real-time visualisation of the bucket/dredge head relative to the design in plan, profile (2D) or 3D; large grid models to visualise differences between actual and design, improved accuracy and speed with laser and sonar scans providing real-time updates on material placement or removal; and easy to create volume calculations and reports.</p>

Trimble preferred UAVs and USVs

Expanding the Marine portfolio further, Trimble have partnered with UAV manufacturers Delair and Microdrones, and USV manufacturer Seafloor Systems, a small selection of whose products are detailed here.

Delair UX11



The UX11 is a fixed-wing professional mapping drone manufactured by Trimble’s preferred provider of fixed-wing UAV solutions, Delair. This UAV offers significant productivity gains, unprecedented ease of use and high quality aerial data acquisition, ideal for work environments ranging from mines, quarries and construction sites to power, utility, oil and gas sites. This UAV leads the way in large area and highly precise mapping, delivering integrated features for before, during and after flight operations. **Features** include an embedded global shutter camera; centimeter-level precision dual frequency GNSS sensor (L1, L2); post-processed kinematic (PPK) capabilities; 3G/4G cellular and 2.4 GHz wireless connectivity; endurance of up to 59 min; fast and simple setup; fully automatic flight; and cloud based data processing.

Microdrones md4-1000



The md4-1000 is a robust, efficient and versatile multi-rotor drone manufactured by Trimble’s preferred provider of multi-rotor UAV solutions, Microdrones. This UAV is Microdrones’ bestselling UAV, boasting the longest flight times on the market and able to stand up to intense environmental changes, from strong winds and magnetic fields to high temperature and voltage. The md4-1000 is the platform for mdLiDAR1000, mdMapper1000 and mdTector1000CH4 packages, and can be fitted with a number of add-ons for even more flexibility and value. **Features** include robust housing and components; rain and heat resistance; GNSS chip; practical design configuration for efficient flight; failsafe motors; upgradeability; and a smart auto pilot system for stable flight and thus more accurate and precise data.

Seafloor HyDrone

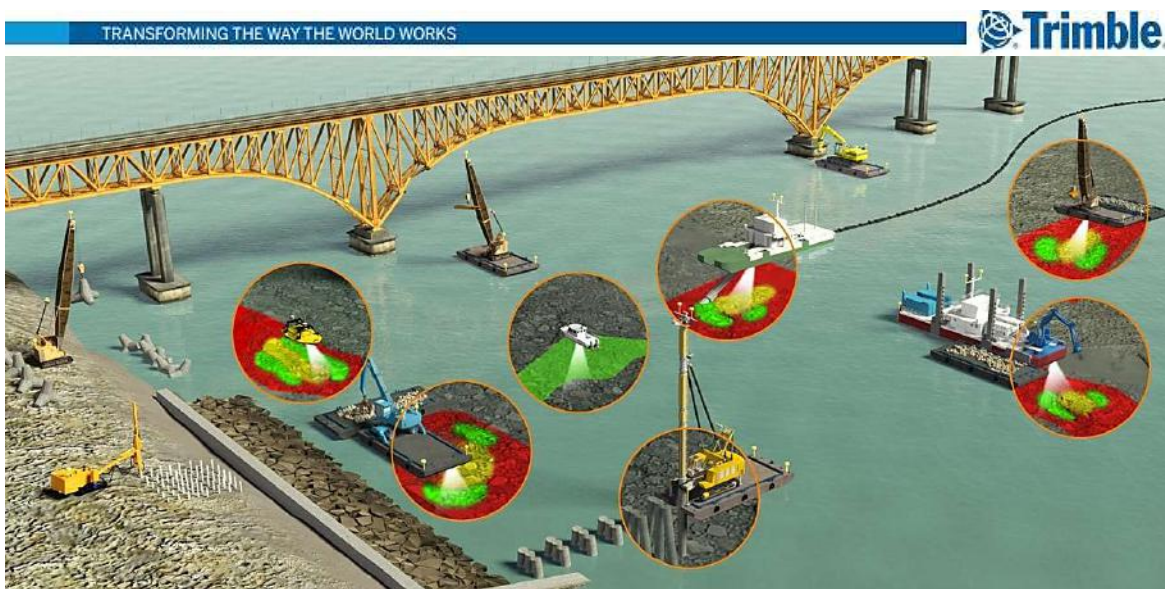


The HyDrone is a one-man portable, remote controlled catamaran for hydrographic survey applications from Trimble’s preferred provider of USV solutions, Seafloor Systems. When combined with the HydroLite echosounder kit, this USV attains the same results as more expensive RC survey systems. Its wide profile, lightweight, watertight and durable construction provides stability, portability and ruggedness, whilst powerful differential thrusters offer excellent manoeuvrability. The vessel is built with high quality marine components and materials, and easily disassembles for shipping and transport. **Features** include a battery endurance of 8+ hrs at a speed of 3 knots; a high-power remote control system offering up to 2 km range; an optional auto pilot module; and a payload capacity of 15 kg.

Seafloor EchoBoat



The EchoBoat is a two-man portable, remote controlled and autonomous USV for hydrographic survey applications from Trimble’s preferred provider of USV solutions, Seafloor Systems. This multi-payload vehicle features improved thrust, easily disassembles for shipping and transport, and is manufactured from high quality marine components and materials. It allows access to remote areas and is suitable for environments such as mines, ponds, rivers, lakes, sewage treatment plants and harbours. **Features** include a battery endurance of up to 8 hrs; custom instrumentation to client requirements; powerful differential thrusters for manoeuvrability; easy switch to remote operation with a 2.4 GHz RCU offering up to 2 km range; swappable sensor suites; and a payload capacity of 29 kg.



Trimble is a world leader in delivering GNSS technology to a wide range of industries, which includes the marine industry with their advanced, flexible, high-performance positioning systems to meet unique marine needs on simple and complex projects. The Trimble Marine product portfolio includes GNSS receivers, smart antennas, sensors, total stations and field controllers, together with specialised marine software that will allow you to operate with confidence. These Trimble Marine solutions can be easily integrated into third-party systems, and have been specifically designed to improve overall accuracy, quality and productivity of coastal, riverine and inland water body operations, and to overcome technical challenges characteristic of such operations.

Trimble Marine systems meet the demands of a wide range of applications, including dredge positioning and guidance for purposes such as waterway maintenance, environmental remediation and coastal protection; coastal defence rock dumping and placement; placement of caissons, blocks and piles; hydrographic survey (single beam or multibeam) environmental data collection and processing; positioning and tracking of barges, tugs and other construction vessels; offshore-rig-positioning and anchor-handling; and surveys for purposes such as channel maintenance, dredging progress, environmental surveys, and bed erosion.

In addition to high quality and innovative technology, service and support are also hallmarks of Trimble. Therefore, when choosing Trimble you can be rest assured that your projects will be kept running continuously and efficiently.

For more information visit www.heavyindustry.trimble.com/en/products/marine



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