



TRIMBLE MARINE CONSTRUCTION SYSTEMS

Trimble SPS marine systems represent Trimble's many years' experience in positioning technology and the marine industry, and demonstrate our commitment to professionals working in marine applications. They deliver the accuracy and reliability you need, and with their exceptional performance and our unsurpassed technical support, they provide total peace of mind.

A COMPLETE SOLUTION FOR MARINE CONSTRUCTION

Trimble® SPS marine GPS receivers and antennas are advanced positioning systems developed by the leader in GPS technology for marine solutions. Whatever your unique marine construction need, and no matter how simple or complex your projects, Trimble has the flexible, high-performance GPS system for you. Trimble offers a complete solution, one that includes both hardware and software. Trimble receivers can also be easily incorporated into system-integrator solutions.



Trimble SPS marine GPS receivers and antennas offer cost-effective solutions for permanent or temporary installations. Shown here: The SPS461 GPS Heading Receiver.

Trimble Tablet: This advanced, extremely rugged computer combined with HYDROpro software, an SPS GPS receiver, and other sensors provides an efficient, highly portable marine positioning solution for a wide range of applications. For shore-based work, Trimble Tablet also runs SCS900 for measurement and stakeout operations.

Trimble Site Positioning Systems optimally partner with Trimble HYDROpro marine software. Trimble HYDROpro features dedicated configurations for specific applications, as well as for single beam hydrographic surveys and environmental data collection and processing.

RAPID DEPLOYMENT, EASY INTEGRATION

JUST ONE RECEIVER FOR FAST INSTALLATION

Perhaps your business requires a permanently installed GPS heading and positioning solution. Or do changing application needs demand a flexible system that can be quickly deployed to different vessels?

Trimble offers a range of receivers offering cost-effective solutions for permanent or temporary installations.

EASY INTEGRATION WITH OTHER SYSTEMS

All Trimble SPS receivers share a common interface and accessories. Each receiver is therefore easily integrated with other Trimble systems: You can reuse data and accessories across multiple applications.

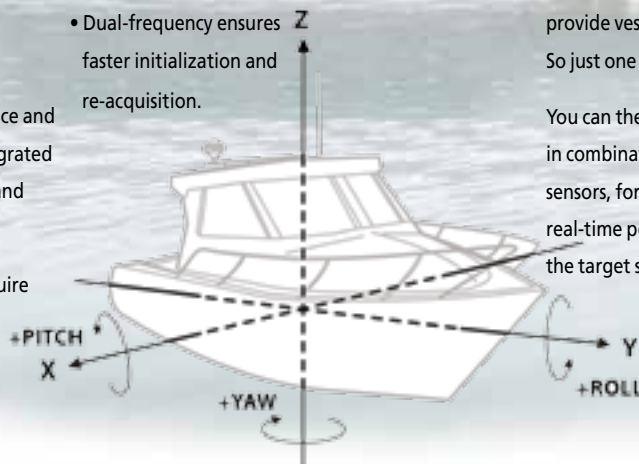
Employees familiar with one Trimble system require minimal training with another. They can start working with a new receiver immediately.

HIGH-PRECISION GPS HEADING...FAST

DUAL L1/L2 ANTENNAS: KEY TO PRECISION, FLEXIBILITY

The Trimble SPS361/SPS461 system is a modular, dual-frequency solution employing separate plug-in dual-frequency antennas. This antenna configuration offers significant benefits over single-frequency and fixed baseline systems:

- More precise GPS heading—flexible antenna separation enables users to maximize precision.
- Dual-frequency ensures faster initialization and re-acquisition.



EASILY DETERMINE THE POSITION OF OTHER SENSORS ON A VESSEL

A COMPLETE HEADING SOLUTION

Built on the success of the Trimble SPS551H add-on heading sensor, the SPS361/SPS461 combines the same precision and reliability in a single receiver. This results in a compact solution that is easy to mobilize.

ONE SYSTEM DELIVERS POSITION, HEADING, AND ATTITUDE

The dual antennas of the Trimble SPS361/SPS461 provide vessel position, heading, and pitch or roll. So just one cost-effective system is needed.

You can then use Trimble HYDROpro software in combination with the receiver data and other sensors, for example, an echosounder, to determine real-time position, heading, and precise elevation of the target surface.

Quickly and easily determine vessel position, heading, and pitch or roll.

PRODUCTS DEDICATED TO MARINE APPLICATIONS; A COMPANY COMMITTED TO ITS MARINE CUSTOMERS.

PRECISE GPS FOR TIDE

A Trimble Precision GPS receiver such as the SPS651 lets you immediately determine water level wherever you are. It makes measuring tidal height on location significantly more precise and cost-effective than with conventional methods. Tide gauges and associated radio links are no longer essential.

MSK BEACON SUPPORT

The MSK Beacon service is a free-to-air correction signal, and MSK transmissions are available in many coastal regions and inland waterways around the world. A receiver such as the Trimble SPS351 or SPS361 with its GA530 antenna and internal Beacon receiver makes effective use of the MSK Beacon service.

PUT TRIMBLE TECHNOLOGY AND EXPERIENCE TO WORK IN YOUR MARINE APPLICATION

Trimble SPS marine systems meet the demands of a wide range of marine construction and hydrographic survey applications, including:

- Precise placement of marine structures such as breakwaters, bridges, caissons, piles, marina piers and coastal defences
- Dredge vessel positioning
- Positioning and tracking of barges, tugs and other construction vessels
- Offshore-rig-positioning and anchor-handling applications
- Hydrographic surveys for applications such as channel maintenance, dredging progress, environmental surveys, and bed erosion



Unlike single-antenna systems, Trimble SPS heading receivers provide precise navigation that is vessel-centric. Marine operators receive simple forward/back, port/starboard, and clockwise/anti-clockwise guidance, which allows them to position the vessel quickly and efficiently.



Driving piles into a seabed requires great accuracy in a harsh environment. Trimble SPS systems utilize Precise GPS, heading sensors, and integrated software to create positioning solutions designed specifically for marine construction.

THE POSITION ACCURACY YOU NEED

FLEXIBLE, SCALABLE, UPGRADABLE

The Trimble SPS family of receivers provides position accuracy to suit most applications—up to precise GPS accuracy (centimeter-accurate). With modular systems such as the SPS461, simply upgrade to the level of precision you require. Trimble receivers support the following correction sources:

- SBAS systems such as WAAS
- OmniSTAR VBS
- MSK Beacon (free-to-air)
- DGPS using UHF radio links (RTCM)
- OmniSTAR XP or HP
- Virtual Reference base station
- Precision GPS (RTK)
- Virtual Reference Stations (VRS)

Corrections are accessible via internal radio or demodulator, external radio, or via the Internet.

Optional UHF radios in Trimble SPS GPS receivers ensure easier integration, fewer cables, and more compact receivers.



Avoid over- or under-dredging. A Trimble SPS system will provide a 3D position of the dredge head, which is then displayed with the channel design. This precise information gives marine operators "eyes under water", enabling them to see exactly where material has to be dredged.



Trimble SPS systems support a diverse range of hydrographic surveys, including port and harbor maintenance, environmental, cable and pipe maintenance, and buoy mooring.



PRODUCTS IN THE COMPLETE MARINE SOLUTION FROM TRIMBLE

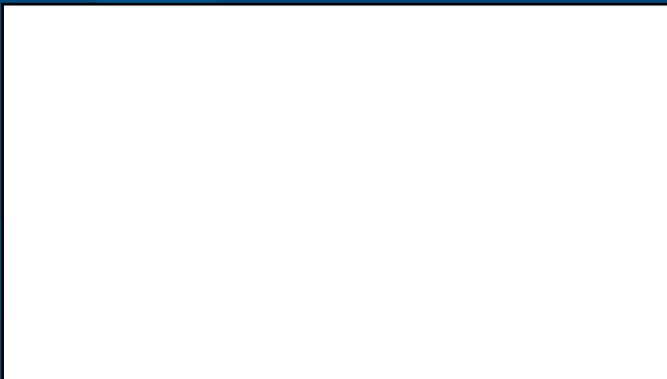
TRIMBLE SPS RECEIVERS

		SPS351	SPS361	SPS461	SPS651
Rover Options	Precise Horizontal RTK			Optional	
	Precise Vertical RTK			Optional	Y
	Precise Heading/Vector		Y	Y	SPS551H
	Location RTK			Optional	Y
Base Options	RTCM DGPS	Y	Y	Y	Y
	Static RTK	Not Supported			
	Moving Base				Y
Signal Options	RTCM DGPS	Optional			Y
	GLONASS				Optional
	L2C			Optional	Optional
	SBAS	Y	Y	Y	Y
	OmniSTAR VBS		Y	Y	Y
	OmniSTAR HP/XP			Optional	Y
	Beacon	Y	Y	Y	
General Options	1PPS	Y	Y	Y	Y
	VRS support	Y	Y	Y	Y
	Max Data rate	10Hz	20Hz	20Hz	10Hz

Trimble SPS receivers easily integrate with Trimble and other third-party navigation and positioning systems:

- The receivers support standard NMEA and Trimble proprietary message outputs
- A single-cable connection to a PoE (Power over Ethernet) capable network is possible with the SPS361 and SPS461. The receivers are IEEE 801.3af PoE compliant.

Talk to your local Trimble Marine distributor for more information on the system integration potential of Trimble SPS receivers.



YOUR LOCAL TRIMBLE OFFICE OR REPRESENTATIVE

TRIMBLE GPS ANTENNAS

		GA510	GA530	Zephyr Rover	Zephyr Rugged	Zephyr Geodetic Model 2
Signal Options	Beacon		Y			
	SBAS (WAAS etc)	Y	Y	Y	Y	Y
	OmniSTAR	Y	Y	Y	Y	Y
	GPS L1/L2/L2C	Y	Y	Y	Y	Y
	GPS L5			Y	Y	Y
	GLONASS			Y	Y	Y

TRIMBLE HYDROPRO SOFTWARE

		HYDROpro Navigation	HYDROpro Construction	Terramodel HDMS
HYDROpro Configurations	Navigation/Survey	Y	Y	
	Dredging	Y	Y	
	Piling		Y	
	Rig/Barge		Y	
	NavEdit	Y	Y	Y
	Chart Plotting			Y
	Channel Design/Volume			Y

NORTH AMERICA

Trimble Engineering & Construction Group
 5475 Kellenburger Road
 Dayton, Ohio 45424
 USA
 800-538-7800 (Toll Free)
 +1-937-245-5154 Phone
 +1-937-233-9441 Fax
 www.trimble.com

ASIA-PACIFIC

Trimble Navigation Singapore PTE Ltd.
 80 Marine Parade Road, #22-06
 Parkway Parade
 Singapore, 449269
 SINGAPORE
 +65 6348 2212 Phone
 +65 6348 2232 Fax

EUROPE

Trimble GmbH
 Am Prime Parc 11
 65479 Raunheim
 GERMANY
 +49-6142-2100-0 Phone
 +49-6142-2100-550 Fax

CHINA

Trimble Beijing
 Room 2805-07, Tengda Plaza,
 No.168 Xiwai Street
 Haidian District, Beijing,
 CHINA 100044
 +86-10-8857-7575 Phone
 +86-10-8857-7161 Fax
 www.trimble.com.cn

AFRICA & MIDDLE EAST

Trimble Export Middle East
 P.O. Box 17760
 LOB18 1606 / 1607
 JAFZ View
 Dubai
 UAE
 +971-4-886-5410 Phone
 +971-4-886-5411 Fax