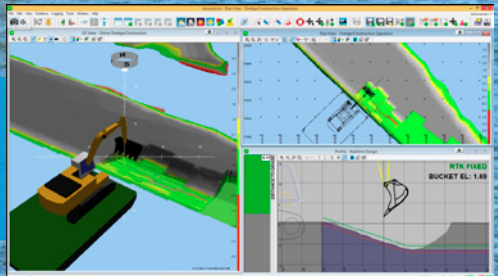




Accurate, reliable efficient construction solutions



# ≡ Marine Construction Systems



# The Range

Trimble offers a range of hardware and software solutions including:

- ▶ GNSS Receivers
- ▶ GNSS Correction Sources
- ▶ GNSS Radios
- ▶ Inertial Positioning Systems
- ▶ Antennas
- ▶ Tablets/Computers
- ▶ Marine construction software



Trimble marine GNSS receivers and antennas offer cost-effective solutions for permanent or temporary installations.

*Shown here: MPS865 Dual antenna GNSS Receiver*

## COMPLETE HARDWARE AND SOFTWARE SYSTEMS

Trimble® Site Positioning and Marine Positioning Systems GNSS receivers and antennas are advanced positioning systems developed by the leader in GNSS technology for marine solutions. Trimble offers flexible, high-performance positioning systems to meet your unique marine construction needs on both simple and complex projects. Our solutions include both hardware and software, and can be easily integrated into third-party systems.

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

- ▶ Dredge positioning and guidance (Backhoe Excavator, Bucket Dredger, Cutter Suction Dredger, Grab/Clamshell Dredger)
- ▶ Placement (Coastal Defence Rock Dumping and Placement, Caisson Placement, Block Placement using Wire crane or Excavator, Vertical and Raked pile placement)
- ▶ 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 applications
- ▶ Hydrographic surveys for applications such as channel maintenance, dredging progress, environmental surveys, and bed erosion Trimble 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.



*Trimble TDL 450 Series Radios provide robust UHF frequency solutions for use as repeaters or for work at longer ranges.*



*The Trimble Marine Construction systems provide the 3D position of the dredge head and displays it with the channel design. Precise information gives marine operators "eyes under water"; to see exactly where material should be dredged.*



*Trimble systems support construction and surveying workflows for data integrity and reliability.*

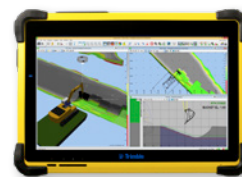
# == Rapid Deployment Easy Integration



Trimble Marine GNSS receivers and antennas offer cost-effective solutions for permanent or temporary installations. Above: GA830 GNSS Beacon Antenna.



Trimble Site Positioning and Marine Vessel Positioning optimally partner with Trimble Marine Construction (TMC) software. TMC features configurations for specific marine construction tasks, as well as for hydrographic surveys.



The advanced, rugged Trimble T10 Tablet works with HYDROpro and TMC software, a GNSS receiver, and other sensors to provide an efficient, highly portable marine positioning solution for a wide range of applications. For shore-based work the Trimble T10 Tablet also runs Trimble SCS900/Siteworks Site Controller Software for measurement and stakeout operations.

## Precise GPS for Tide

Trimble GNSS Receivers provide the capability for monitoring tidal and other water level changes in real-time, providing a more precise and cost-effective solution than conventional methods, removing the need for tide gauges and associated radio links.

Trimble Site Positioning and Marine Positioning Systems receivers share a common interface and accessories. Each receiver integrates seamlessly with other Trimble systems so you can reuse data and accessories across multiple applications. Users who are familiar with one Trimble system require minimal training and can quickly begin working with other Trimble receivers.

## 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. The SPS356 or MPS865 with internal DGNSS Beacon receiver uses corrections via the MSK Beacon service.

## One Receiver for Fast Installation

Need a permanently installed GNSS heading and positioning solution or 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.

## High-Precision Heading... Fast Multi Frequency Antennas

The Trimble MPS865 Heading Receiver with MSK Beacon is a modular, multi-frequency solution employing separate multi-frequency antennas. This antenna configuration offers significant benefits over single-frequency and fixed baseline systems:

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

## One System Delivering Position, Heading and Attitude

The dual antennas of the Trimble GNSS receivers provide vessel position, heading, and pitch or roll. So just one cost-effective system is needed. You can then use Trimble TMC 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.

## Full Advice, Installation, Service, Support

Trimble marine technology is supported by a world-wide dealer network of installers and integrators. Your local dealer can assist with product selection advice, installation, calibration, training and service support.

## Rugged and Reliable Solutions

Downtime can quickly reduce profitability of a project, so Trimble designs hardware for the demands of aggressive marine environments.

## Flexible, Scalable, Upgradeable

Trimble GNSS receivers provide a range of accuracy upgrades, simply upgrade to the level of precision you require.

# Marine Construction Systems

Precise, rugged, and flexible positioning solutions for the most challenging environments. Talk to your local Trimble Marine dealer for more information on how Trimble can help improve marine construction workflows.

## PRODUCTS IN THE COMPLETE MARINE SOLUTION FROM TRIMBLE

### TRIMBLE MARINE GNSS RECEIVERS

		SPS356	MPS865	SPS855	SPS555H	BX992	SPS585	SPS986
<b>Precision Capability</b>	Precise RTK Rover		0	0		0	0	0
	Precise RTK Base		0	0				0
	Limited Rover (10/2)		0	0		0	0	0
	Limited Rover (10/10)		0	0		0	Y	0
	Limited Rover (30/30)	Y	Y			Y		0
	DGPS/DGNSS Base		0	0				0
	Heading/Moving Base		Y	0	Y	Y	Y	0
<b>Frequency</b>	Single Frequency	Y	Y	Y	Y		Y	Y
	Dual Frequency		Y	Y	Y	Y	Y	Y
	Triple Frequency		0	0	0	Y		0
<b>Constellation</b>	GLONASS	Y	Y	0	Y	Y	Y	0
	Galileo	Y	0	0	0	0	Y	0
	BeiDou	Y	0	0	0	0	Y	0
	QZSS	Y	Y	Y	Y	Y	Y	Y
	SBAS	Y	Y	Y		Y	Y	Y
<b>Correction Services*</b>	xFill			Y			Y	Y
	CenterPoint RTX		0	Y		Y	Y	Y
	MarineSTAR VBS			Y		Y		Y
	MarineSTAR HP/XP			Y		Y		Y
<b>General Options</b>	Beacon	Y	Y					
	Data logging	0	0	0	0	0		0
	1PPS	Y	Y	Y	Y	Y		
	VRS/IBSS/NTRIP	Y	Y	Y		Y	Y	Y
	Max Data rate	10 Hz	20 Hz	20 Hz	20 Hz	20 Hz	5 Hz	20 Hz
	Cellular		Y					
	Wi-Fi	Y	Y				Y	Y

\* Some correction services require a certain level of precision capability and also may require a subscription Contact your local Trimble Marine Dealer for more information.

### TRIMBLE ANTENNAS

	GA830	Zephyr Rover	Zephyr 3 Rugged	Zephyr Base
Beacon	Y			
SBAS	Y	Y	Y	Y
CenterPoint RTX (MSS)	Y	Y	Y	Y
MarineSTAR (MSS)	Y	Y	Y	Y
Dual/Triple Frequency	Y	Y	Y	Y
GLONASS	Y	Y	Y	Y
Galileo	Y	Y	Y	Y
BeiDou	Y	Y	Y	Y
QZSS	Y	Y	Y	Y

### MARINE SOFTWARE APPLICATIONS

	HYDROpro Construction	Trimble Business Center	TMC
Navigation / Survey	Y		Y
Cutter Suction	Y		Y
Crane	Y		Y
Backhoe Excavator	Y		Y
Piling	Y		Y
Rig/Barge	Y		Y
NavEdit	Y		
Chart Plotting		Y	
Channel design		Y	
Volume calculations		Y	Y

Y – Yes    O – Optional  
MSS - Mobile Satellite Services

## About Trimble Marine

Trimble offers flexible, high-performance positioning systems to meet the unique needs of marine construction on both simple and complex projects. Solutions include both hardware and software, and can be easily integrated into third-party systems. The portfolio includes marine information systems, GNSS receivers, antennas, radios and inertial positioning systems.

For more information, visit [trimble.com/marine](http://trimble.com/marine)

### Trimble Marine Construction

10368 Westmoor Drive  
Westminster, Colorado 80021 USA  
800-361-1249 (Toll Free)  
+1-937-245-5154 Phone  
[marine@trimble.com](mailto:marine@trimble.com)