TRIMBLE DGNSS BEACON

TRIMBLE DGNSS NAVIGATION INFRASTRUCTURE

Trimble® Navigation has a strong tradition in GNSS-based navigation infrastructure for the maritime market. Since 1992 with the introduction of the highly successful Trimble 4000 MSK system and Beacon Control System software, Trimble has remained an industry leader.

As a contributing member of the RTCM-committee that is responsible for defining the RTCM and RSIM protocol standards, Trimble's participation has been influential in advancing the capabilities of these standards. With over two decades of MSK DGPS experience in providing customers with individual system components, consulting services and complete 'turn-key' systems integration, Trimble is dedicated to providing advanced and complete solutions into the maritime market. Systems integration capabilities range from supplying complete operational DGNSS solutions and transmitter integration to complete site-installation and commissioning.

Trimble's beacon site commissioning history includes installations for major coastal authorities. The installations span worldwide including developing countries with associated challenges in power, inter-site-communications and logistics.

Trimble is committed to keeping this unique leading role in the maritime, waterway and off-shore markets that share a strong demand for navigation infrastructure, primary for SOLAS usage.

TRIMBLE DGNSS MODULAR BEACON SOLUTION

The introduction of the new RSIM standard Version 1.2 in 2006 brought with it some exciting new features including:

- Full dual RS support with individual RS ID support for each side.
- Pre-broadcast integrity which checks the corrections before they are transmitted.

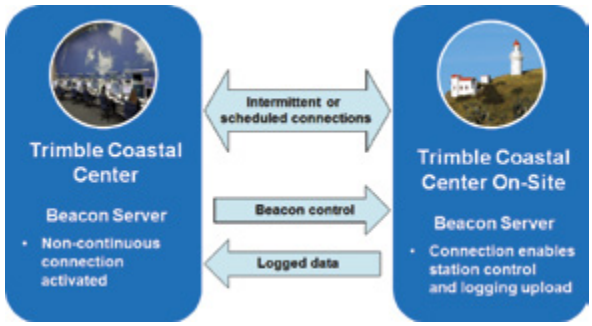
The RSIM Version 1.2 is accompanied by a new architecture which removed the RSIM and the DGPS processing out of the highly integrated 4000 MSK RS and included the 4000 MSK IM into a local server. In addition, the MSK demodulator receiver was removed from the 4000 MSK IM, and the modulator was also removed from the 4000 MSK RS. The configuration treats the GNSS-receiver, the modulator, the MSK-demodulator and the server as separate devices all interconnected via TCP/IP over Ethernet. This separation of the components allows for software updates to the RSIM-DGNSS processing computer to be done independent of the other devices. Similarly, a change in the other devices requires only a change in the software.

Such GNSS beacon architecture is the foundation to continuously improve existing standards to support various GNSS-constellations in upcoming years and decades.

TRIMBLE CONTROL CENTER

The new Trimble DGNSS solution is built around the Trimble Coastal Center software suite.

The control station software supports the connection of any number of beacon sites, Far Field Monitors (FFM) sites and remote, RSIM-compatible, DGPS transmitters in any combination.



Trimble Coastal Center On-Site supports site control and logging with intermittent or scheduled communications links.

In addition to Trimble Coastal Center, Trimble offers Trimble Coastal Center On-Site software which is an application that can run at the beacon or FFM site in situations where there are either unreliable communications or communications available only at scheduled intervals. Trimble Coastal Center On-Site will queue all communications and transmit all queued information such as data base entries and changes in health status back to the control station for processing and storage until the communication lines are up. This enables beacon operators to always have the most up-to-date information on the status of the beacon station.

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TRIMBLE DGNSS MSK BEACON RACK

Due to the increased complexity of beacon site systems, Trimble offers a full DGNSS Beacon System that is fully RSIM Version 1.2 compatible and provides a far superior reliability as compared to previous systems. This fully integrated solution follows modern DGNSS beacon architecture.

Trimble's fully integrated DGNSS Beacon System contains all components necessary to operate for years in harsh environments. The enclosed system includes:

- Trimble NetR9 GNSS reference receivers
- MSK modulators and demodulators
- Communication and IT components
- Servers with Trimble DGNSS Software
- Power assembly
- Lightning protection
- Optional Remote Control Unit
- Optional MF transmitter/amplifier

The DGNSS rack is available in several RS-IM configurations, from a basic set-up to a fully redundant system that can withstand severe conditions on remote sites. The system is compatible with major DGPS transmitters on the market, and is also fully compliant with IALA recommendation paper R-121.

The Trimble fully integrated MSK DGNSS Beacon Rack containing all components fully installed, wired and tested.

Furthermore, besides DGNSS applications, the system can deliver high-accuracy RTK GNSS-corrections via radio or built-in NTRIP Caster (TCP/IP). This is a unique feature in the industry and is ideal when combining DGNSS near-to-shore applications as well as port approach, docking and marine construction tasks.

The system allows an optional use of Trimble RTX™ service, which allows permanent monitoring and positioning of beacon sites. This means significant time and cost savings when establishing a new or replacing an existing DGNSS site as part of your disaster recovery plan in case of; tectonic displacement, storm, operation on a vessel, etc.

The modular approach allows use of Trimble VRS™ data streams, replacing GNSS-receiver hardware data streams. This is a possible scenario for early detection of jamming and spoofing on a local site, increasing the robustness of the system against safety threats.

Trimble's DGNSS team is happy to assist you for optimal use of these exciting new technologies, in order to create a system design matching perfectly to your requirement.

APPLICATIONS

Due to its modularity and versatility, the Trimble DGNSS beacon is compliant for any SOLAS-related maritime and waterway application. Besides this, any application with a demand for reliable GNSS-correction over large areas can be served: port and off-shore construction, border protection, mining in remote areas, off-shore activities, etc.

ORDER INFORMATION

DEFAULT CONFIGURATION	PART NUMBER
Bundle DGNSS Beacon System, enclosure including 1 RS assembly	97401-05

OPTIONAL ADD-ONS*	PART NUMBER
DGNSS Integrity Monitor Kit	97401-10
DGNSS Reference Station Kit	97401-20
Bundle DGNSS Far Field Monitoring System Rack (FFM)	97401-30
DGNSS assembly remote reboot feature kit	97401-40

** May be included for an additional charge*

Specifications subject to change without notice.

TRIMBLE AUTHORIZED DISTRIBUTION PARTNER

NORTH AMERICA
Trimble Infrastructure
10368 Westmoor Drive
Westminster, Colorado 80021 • USA
+1-888-879-2207 (Toll Free)
+1 720-887-6101 Fax

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim • GERMANY
+49-7112-2954-468 Phone
+49-6142-2100-550 Fax

ASIA-PACIFIC
Trimble Navigation
Singapore Pty Limited
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269 • SINGAPORE
+65-6348-2212 Phone
+65-6348-2232 Fax

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www.trimble.com