

# MS750

## *Dual-Frequency RTK Receiver for Marine Applications*

### Key features and benefits

- **20-Hz position update rate**
- **Less than 20 milliseconds position latency**
- **Centimeter-level position accuracy**
- **Front panel display & keypad for status monitoring and configuration**
- **User-defined local coordinates direct from receiver**

The MS750™ GPS receiver represents the highest level of accuracy and response available from a dual-frequency GPS receiver. The receiver is specifically designed to allow easy integration of reliable centimeter-level positions to any hydrographic survey, marine construction or precise navigation application.

### Accuracy and response times

Dynamic platforms, such as dredgers or survey and construction vessels, require virtually instantaneous position reports multiple times per second. The MS750 receiver delivers positions to navigation software with a latency of less than 20 milliseconds at 20 times per second. This responsiveness is matched with a horizontal accuracy of 2 cm and vertical accuracy of 3 cm. For the most precise applications, the MS750 receiver provides accuracy of 1 cm horizontally at a 5-Hz rate with a small increase in latency.

### Interfacing and configuration ease

The MS750 receiver is designed to plug right into your application with minimal development. An easy-to-use application file interface enables you to completely program receiver operation with a single command. Alternately, the receiver can be configured via the user-friendly built-in display and keyboard interface, or by using the Windows-based Configuration



*Dual-frequency RTK receiver for marine applications.*

Toolbox software. Multiple configurations can be stored in the receiver as files and activated when desired. Local datum and transformation parameters can be loaded directly into the receiver. Therefore, output grid coordinates are compatible with GPS and traditional survey systems that may be in use on the same site. ASCII or binary messages may be output through any of the three bi-directional serial ports.

### Advanced technology

The accuracies, update rates and latencies available in the MS750 receiver are made possible through a GPS architecture specifically designed for demanding dynamic positioning applications. Reliable operation in the most adverse environments, such as radio interference experienced in ports, harbors and along the coastline, is a strict requirement.

Custom designed hardware with Super-trak™ multibit GPS signal processing technology and EVEREST™ advanced multipath signal suppression provide superior tracking, especially for weaker, low-elevation satellites.

Both the RTCM format for differential GPS corrections and Trimble's published Compact Measurement Record (CMR) differential data can be received simultaneously, allowing the receiver to choose the optimum source and provide seamless navigation. The ability to calculate the baseline vector between two moving receivers to centimeter accuracy is available as an option, and is useful for determining accurate headings. The MS750 receiver addresses a vast range of applications in the field of hydrographic survey, marine construction, docking systems and other precise navigation applications.

# MS750

## Dual-Frequency RTK Receiver for Marine Applications

### STANDARD FEATURES

- Centimeter accuracy, real-time positioning
- 20-Hz position updates
- < 20 ms position latency
- Front panel display & keypad
- User-defined local coordinates direct from receiver
- 3 serial I/O ports
- 1-PPS Output
- RTCM Input/Output
- One year hardware warranty
- Compact, easy mounting design
- Trimble CMR Input/Output
- Synchronized 5-Hz position updates

### OPTIONS AND ACCESSORIES

- Moving Base RTK
- Rugged L1/L2 Antenna
- Micro-centered Antenna
- Antenna Cables (5 m, 7.5 m, 10 m, 24 m & 30 m)
- Data extension cable
- Extended hardware warranty
- Firmware and software update service

### ORDERING INFORMATION

<b>MS750 Receiver</b>	<b>Part Number 36577-00</b>
Includes MS750 receiver, Configuration Toolbox software, operating manual, power/data cable, data/1-PPS cable	
<b>Compact L1/L2 with Fixed Ground Plane</b>	<b>Part Number 36128-00</b>
<b>Compact L1/L2 Antenna Micro Centered</b>	<b>Part Number 38614-00</b>
<b>L1/L2 Permanent Antenna</b>	<b>Part Number 31353-00</b>
<b>Rugged L1/L2 Antenna</b>	<b>Part Number 31354-00</b>
<b>Rugged L1/L2 Antenna, 4-Hole Mount</b>	<b>Part Number 31354-05</b>
<b>Rugged Micro Centered/13" GP</b>	<b>Part Number 38337-00</b>
<b>TSC1 for MS750</b>	<b>Part Number 30000-90</b>

### PHYSICAL CHARACTERISTICS

<b>Size</b>	14.5 cm W × 5.1 cm H × 23.9 cm D (5.7" W × 2.0" H × 9.4" D)
<b>Weight</b>	1.0 kg (2.25 lbs)
<b>Power</b>	12 VDC/24 VDC, 9 Watts

### ENVIRONMENTAL CHARACTERISTICS

<b>Operating temperature</b>	-20°C to +60°C
<b>Storage temperature</b>	-30°C to +80°C
<b>Humidity</b>	MIL 810E, Meth. 507.3 Proc III, Aggravated, 100% condensing
<b>Vibration</b>	MIL 810D, Tailored Random 3 gRMS Operating Random 6.2 gRMS Survival
<b>Mechanical shock</b>	MIL 810D ± 40 g Operating ± 75 g Survival
<b>EMC</b>	
<b>Radiated emissions</b>	CISPR 12
<b>Conducted emissions</b>	SAE J1113/41
<b>Radiated immunity</b>	ISO/DIS 13766, 30V/m
<b>ESD</b>	±15 KV
<b>Input voltage transients</b>	ISO 7637-2

### TECHNICAL SPECIFICATIONS

<b>Tracking</b>	9 channels L1 C/A code, L1/L2 full cycle carrier Fully operational during P-code encryption		
<b>Signal processing</b>	Super-trak multibit signal processing technology EVEREST multipath signal suppression		
<b>Positioning mode</b>	<b>Accuracy<sup>1</sup></b>	<b>Latency<sup>2</sup></b>	<b>Max Rate</b>
<b>Synchronized RTK</b>	1 cm + 2 ppm Horizontal 2 cm + 2 ppm Vertical	300 ms <sup>3</sup>	5 Hz Std
<b>Low latency</b>	2 cm + 2 ppm Horizontal <sup>4</sup> 3 cm + 2 ppm Vertical	< 20 ms	20 Hz
<b>DGPS</b>	< 1 m	< 20 ms	20 Hz
<b>Initialization</b>	Automatic OTF (on-the-fly) while moving		
<b>Time required</b>	Typically < 1 minute		
<b>Range</b>	Up to 10 km from base for RTK		
<b>Start-up</b>	< 90 seconds from power-on to positioning < 30 seconds with recent ephemeris		
<b>Communications</b>	3 × RS-232 ports. Baud rates up to 115,200 2 × CAN/J1939		
<b>Configuration</b>	Via front panel display and keypad, Configuration Toolbox Software or user-definable application files		
<b>Output formats</b>	NMEA-0183: GGG, GGA, ZDA, VTG, GSV, VGG, VHD, GST, PJT and PJK Trimble Binary Streamed Output		

<sup>1</sup> 1 sigma level

<sup>2</sup> At maximum output rate

<sup>3</sup> Dependent on data link throughput

<sup>4</sup> Assumes 1 second data link delay



Trimble Navigation Limited  
Corporate Headquarters  
645 North Mary Avenue  
Sunnyvale, CA 94086  
+1-408-481-8940  
+1-408-481-7744 Fax  
www.trimble.com

Trimble Navigation Europe Limited  
Trimble House  
Meridian Office Park  
Osborne Way  
Hook, Hampshire RG27 9HX U.K.  
+44-1256-760-150  
+44-1256-760-148 Fax

Trimble Navigation  
Singapore PTE Limited  
79 Anson Road #05-02  
Singapore 079906  
SINGAPORE  
+65-325-5668  
+65-225-9989 Fax



© Copyright 1998 Trimble Navigation Limited. All rights reserved. Trimble with the Trimble logo is a trademark of Trimble Navigation Limited registered in the United States Patent and Trademark Office. EVEREST, MS750 and Super-trak are trademarks of Trimble Navigation Limited. All other marks are the property of their respective owners. TID11331A (9/99)