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Trimble DSM132 DGPS Receiver

Combined MSK, WAAS/EGNOS, and satellite L-band DGPS receiver for ports, harbors, and inland waterways

The Trimble® DSM™132 DGPS receiver is an ideal solution for surveying and dredging in ports, harbors and inland waterways.

The DSM132 is a high-performance submeter GPS receiver that houses an MSK beacon and satellite differential correction receiver. It uses free public differential corrections from sources such as MSK beacons or WAAS/EGNOS. Alternatively the DSM132 can use subscription-based private differential correction services. Using these corrections, the DSM132 calculates submeter positions in real time.

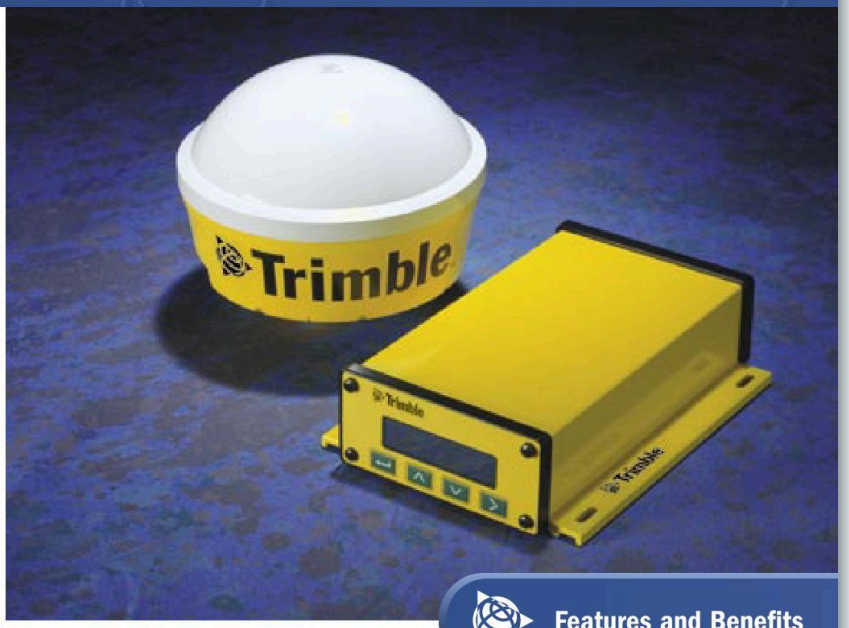
Wide area coverage

The MSK beacon receiver provides superior weak-signal performance, allowing differential corrections to be received at long distances from the reference station and during challenging weather conditions. The dual-channel capability allows for intelligent and seamless switching between beacons.

The L-band satellite differential correction receiver requires a subscription to a differential correction service and provides multiple vendor support. The receiver ensures the satellite corrections to be uniformly accurate over the entire satellite coverage area without the degradation in accuracy associated with increasing distance from fixed reference stations.

The DSM132 accepts RTCM SC-104 differential corrections from an external source through a serial interface.

The Trimble EVEREST™ technology improves results in high multipath environments and locations where other radio frequencies could jam the GPS signals such as harbors and construction sites.



Features and Benefits

- Easy to set up and install
- Beacon, L-band, WAAS/EGNOS or external corrections
- Built-in display and keyboard
- High position output rate with low latency
- Optional reference station output

Superior Integration

The DSM132 receiver is designed for easy setup and installation with a built-in display and keyboard. The source and status of DGPS corrections can easily be determined from the built-in differential correction receivers, or from an external differential correction source.

The DSM132 is easy to connect with other onboard equipment such as integrated navigation systems, radars, autopilots, and plotters. Through one of the two serial ports, these receivers output standard NMEA-0183 messages, including position, velocity, and status information. The DSM132 receiver outputs position reports at up to 10 Hz. The second serial port is for setup, control, and data output using Trimble Standard Interface Protocol (TSIP). For easy setup, the Windows based Trimble TSIP Talker™ software is included with the DSM132. The receivers also feature a 1 PPS output available on either serial port and offer a differential speed accuracy of better than 0.1 Knot.

Reference Station

The DSM132RS is a cost effective solution for providing high quality DGPS corrections. The corrections are generated in the standard RTCM SC-104 format for broadcast in situations where there is no MSK beacon signals, or L-band corrections are not suitable.

The DSM132 receiver is a high-quality solution for applications that require submeter positioning in demanding environments.

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Standard Features

- 12-channel GPS receiver
- L-Band satellite differential correction receiver[1]
- Dual-channel digital medium frequency beacon reciever
- WAAS (U.S.A.) and EGNOS (Europe) capable[2]
- Sub-meter differential accuracy
- EVEREST Multipath Rejection (standard in receivers with version 1.73 firmware or greater)
- 2 line, 16 character liquid crystal display
- 4 button keyboard
- Combined L1 GPS, Satellite differential, and beacon antenna
- Two programmable RS-232 serial ports:
  - NMEA-0183 output/RTCM SC-104 input
  - TSIP I/O
- 1, 2, 5, and 10 Hz output messages
- Operation manual and utilities on CD
- 15 m antenna cable
- GPS reciever to PC cable
- Magnetic mount for antenna
- 1 PPS output

Physical Characteristics

DSM132

Size . . . . . 14.5 cm wide × 5.1 cm high × 19.5 cm deep (5.7 in × 2.0 in × 7.7 in)
Weight. . . . . .0.76 kg (1.68 lb)
Power . . . . . 7 W (max.), 10 to 32 VDC
Operating temperature. . . . . .–20 °C to +65 °C (–4 °F to +149 °F)
Storage temperature . . . . . .–30 °C to +85 °C (–22 °F to +185 °F)
Humidity . . . . . 100% condensing, unit fully sealed

Combined Antenna

Size . . . . . 15.5 cm deep × 14 cm high (6.1 in × 5.5 in)
Weight. . . . . .0.55 kg (1.2 lb)
Operating temperature. . . . . .–30 °C to +65 °C (–22 °F to +149 °F)
Humidity . . . . . 100% condensing, unit fully sealed
Casing . . . . . Dust proof, waterproof, shock resistant

Options

- Reference station (RTCM output)
- DSM132RS–DSM132RS receiver with 30 m antenna cable, L1 Geodetic antenna
- Trimble offers a range of radio options for users who do not wish to use MSK beacon or L band corrections

Performance Characteristics

GPS Receiver

General . . . . . 12-channel, parallel tracking, L1 C/A code with carrier phase filtered measurements and multi-bit digitizer
Update rate. . . . . 1, 2, 5 and 10 Hz
Differential speed . . . . . 0.1 kn (0.1 MPH, 0.16 km/h, 5.6 cm/sec) accuracy
Differential position . . . . . .Less than 1 m horizontal RMS accuracy (At least 5 satellites, PDOP <4 and RTCM SC-104 standard format broadcast from a Trimble reference station or equivalent reference station.)
Time to first fix . . . . . .<30 sec, typical
NMEA messages . . . . . GGA, GLL, GRS, GSA, GST, GSV, MSS, RMC, VTG, XTE, ZDA and Trimble proprietary messages

MSK Beacon Dual-Channel Receiver

Frequency range . . . . . 283.5 KHz to 325.0 KHz
Channel spacing . . . . . 500 Hz
MSK modulation . . . . . .50, 100 and 200 bits/sec
Signal strength . . . . . 10 µV/meter minimum @ 100 BPS
Dynamic range . . . . . 100 dB
Beacon acquisition . . . . . .<5 sec, typical time
Operating modes. . . . . .Auto Power, Auto Distance, and Manual modes

L-band Satellite Differential Correction Receiver with Multiple Vendor Support

Bit error band . . . . . .10^{-5} for Eb/N of >5.5 dB
Acquisition and re-acquistion time. . . . . .<2 sec, typical
Frequency band . . . . . .1525–1560 MHz
Channel spacing . . . . . 5 kHz

Ordering Information

For further information please contact your local Trimble office or representative. You may also visit our website at http://www.trimble.com.

1 For the DSM132 to operate with the L-band corrections the client must subscribe to a satellite differential service. Contact L band suppliers such as Omnistar or Thales to check L band availability in your area.

2 Contact your local Trimble office or representative to check for 'free to air' Satellite Based Augmentation Service (SBAS) availability in your area.

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