DATASHEET

TRIMBLE SPS356 DGNSS/BEACON RECEIVER

INTEGRATED IALA BEACON CAPABILITY ALLOWS THE USE OF FREE MSK BEACON CORRECTION TRANSMISSIONS WITHOUT EXTRA RECEIVER OR ANTENNA

FULL GNSS TRACKING CAPABILITY (GPS, GLONASS, BEIDOU, GALILEO, QZSS, SBAS)

USE DGNSS RTCM OR CMR CORRECTIONS FROM MULTIPLE SOURCES AND REPEAT MSK BEACON CORRECTIONS TO OTHER DEVICES

SUB-METER HORIZONTAL POSITIONING ACCURACY FOR MARINE AND OEM APPLICATIONS

INTEGRATED BLUETOOTH® AND WI-FI WIRELESS TECHNOLOGY FOR CABLE-FREE SYSTEM INTEGRATION

ETHERNET AND BROWSER INTERFACE PROVIDES REMOTE ACCESS OVER THE INTERNET OR BY CABLE FOR DATA MONITORING AND CONFIGURATION

SUB-METER ACCURACY AT AN AFFORDABLE PRICE

The Trimble SPS356 DGNSS/Beacon Receiver is an economical answer to the many demands of marine construction. It incorporates tried and tested DGNSS positioning technology in a robust package with an easy to use interface. Combined with Trimble HYDROpro™ software, it provides flexibility for a wide range of marine construction applications, including:

- Dredging
- Positioning (tugs / anchors)
- Navigation
- Rock and material placement
- Bathymetric survey

Trimble Tough. Trimble Secure

The robust construction and modularity of the SPS356 system delivers installation flexibility as required on marine vessel installations. The receiver can be mounted in a secure environment protected from the weather and theft, leaving only the antenna outside. Trimble EVEREST™ technology improves results in high multi-path environments such as those encountered on construction vessels and port construction sites.

Accuracy at All Times and All Places

The Trimble SPS356 receiver can achieve DGNSS positioning with sub-meter precision using RTCM DGNSS corrections either broadcast free by IALA MSK Beacon stations, via the Internet from an NTRIP source, from SBAS (satellite based augmentation systems) such as WAAS, EGNOS and MSAS or via an external radio from a local reference station. The RTCM correction stream from an MSK source can be passed to other DGNSS receivers using the Repeat RTCM function.

Easier from Start to Finish

Serial, Ethernet, Wi-Fi and Bluetooth capability combined with standard NMEA output protocols mean that it can easily be integrated into solutions, is easier to manage remotely, and allows easy access to the data and functions of the receiver.

A Family of Site Positioning Systems to Fit Job Requirements

The SPS356 receiver is part of the family of Trimble site positioning system products with common interface, connectors and interchangeable accessories. This system approach helps reduce product training and part stocking. For large companies managing multiple sites around the world it increases operational flexibility and reduces the need for knowledge of different systems for different applications through deployment of a common user interface.

Trimble
The Construction Technology Standard
construction.trimble.com

TRIMBLE SPS356 DGNSS/BEACON RECEIVER

FACTORY CONFIGURATION

Type	Modular Rover
Rover position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz
Rover maximum range from base	Unlimited
Rover operation within a VRS™ network	RTCM DGNSS only
IBSS (Internet Base Station Service) Support	Rover only
Constellation tracking	GPS, GLONASS, Galileo, Beidou, QZSS, SBAS
Signal tracking	Single frequency

GENERAL

Keyboard and display	VFD display 16 characters by 2 rows On/Off key for one-button startup Escape and Enter keys for menu navigation 4 arrow keys (up, down, left, right) for option scrolls and data entry
Dimensions (L × W × D)	17.5 cm (6.9 in) × 12.8 cm (5.0 in) × 5.9 cm (2.3 in) including connectors
Weight	1.15 kg (2.54 lb) receiver only

ANTENNA OPTIONS

GA530, Rugged GA530	L1 GNSS (GPS, Glonass, Galileo, BeiDou, QZSS), MSK Beacon, L1 SBAS
GA810	L1 GNSS (GPS, Glonass, Galileo, BeiDou, QZSS), L1 SBAS
GA830	L1 GNSS (GPS, Glonass, Galileo, BeiDou, QZSS), MSK Beacon, L1 SBAS

ENVIRONMENTAL

Operating temperature	–40 °C to +65 °C (–40 °F to +149 °F)
Storage temperature	–40 °C to +80 °C (–40 °F to +176 °F)
Humidity	MIL-STD 810F, Method 507.4
Waterproof	IP67 for submersion to depth of 1 m (3.3 ft), dustproof

SHOCK AND VIBRATION

Pole drop	Designed to survive a 1 m (3.3 ft) pole drop onto a hard surface
Shock – Non-operating	To 75 g, 6 ms, saw-tooth
Shock – Operating	To 40 g, 10 ms, saw-tooth
Vibration	Tested to Trimble Survey profile (2.6 g RMS): 5 Hz–500 Hz: 0.15 g/Hz2 350 Hz to 500 Hz; –6 dB/octave

MEASUREMENTS

- Advanced Trimble Maxwell™ 6 Custom GNSS chip
- L1 signal-to-noise ratios reported in dB-Hz
- Unfiltered, unsmoothed pseudo-range measurements data for low noise, low multipath error, low-time domain correlation, and high-dynamic response
- Trimble EVEREST™ multipath signal rejection
- 220-channel L1 C/A code
- 2-channel MSK Beacon
- 3-channel SBAS (WAAS/EGNOS/MSAS)

SBAS (WAAS/EGNOS/MSAS) POSITIONING

Horizontal accuracy	± 0.50m (1.6ft)
Vertical accuracy	± 0.85m (2.8 ft)

CODE DIFFERENTIAL POSITIONING

Correction type	DGPS RTCM v2.3, DGNSS RTCM v2.4
Correction source	Internal MSK Beacon, DGPS Base via ext. radio, NTRIP via IBSS or VRS
Horizontal accuracy	±(0.30m + 1 ppm) RMS ±(1.0 ft + 1 ppm)
Vertical accuracy	±(0.50m + 1 ppm) RMS ±(1.6 ft + 1 ppm)

POWER

Internal 7.4 V 3900 mA-hr Lithium-ion battery (Optional)

- Internal battery operates as a UPS in the event of external power source failure
- Internal battery will charge from external power source when input voltage is >12 V
- External 12 V DC to 28 V DC power input with over-voltage protection
- 7-pin 0-shell Lemo connector is optimized for lead acid batteries with a cut-off threshold of 11 V DC
- 26-pin D-sub connector is optimized for Trimble lithium-ion battery input (P/N 49400) with a cut-off threshold of 10.5 V
- Receiver will automatically turn on when connected to external power

Power consumption	3.7 to 4.95 W at 18 V

OPERATION TIME ON INTERNAL BATTERY

Rover	7 hours; varies with temperature

REGULATORY APPROVALS

- FCC Part 15 Subpart B (Class B Device) and Subpart C
- CAN ICES-3(B)/NMB-3(B), RSS-Gen, RSS-310 and RSS-210
- R&TTE Directive: EN 301 489-1/-3/-5/-17, EN 300 440, EN 300 328, EN 300 330,
- EN 60950, EN 50371
- ACMA Regulatory Compliance Mark (RCM)
- CE mark compliance
- UN ST/SG/AC.10.11/Rev. 3, Amend. 1 (Lithium-ion Battery)
- UN ST/SG/AC. 10/27/Add. 2 (Lithium-ion Battery)
- WEEE and RoHS compliant

COMMUNICATIONS

Lemo (Serial)	7-pin 0S Lemo, Serial 1, 3-wire RS-232
Modem 1 (Serial)	26-pin D-sub, Serial 2, 5-wire RS232, using adaptor cable
Modem 2 (Serial)	26-pin D-sub, Serial 3, 3 wire RS-232, using adaptor cable
1PPS (1 pulse-per-second)	Yes
USB	1 USB 2.0 (Type B) Device via multi-port adaptor (57167)
Ethernet	Through a multi-port adaptor
WiFi	Simultaneous Client and Access point (AP) modes
Bluetooth wireless technology	Fully-integrated, fully-sealed 2.4 GHz
Network Protocols	Yes
HTTP (web browser GUI)	Yes
NTP Server	Yes
TCP/IP or UDP	Yes
Ntrip	NTRIP v1 and v2, Client mode
mDNS/uPnP Service discovery	Yes
Dynamic DNS	Yes
eMail alerts	Yes
Network link to Google Earth	Yes
PPP and PPPoE	Yes
Supported data formats	
Correction Inputs	CMR™, CMR+™, CMRx, RTCM 2.x, RTCM 3
Correction Outputs	Repeat RTCM from internal Beacon source
Data Outputs	NMEA, GSOF, 1PPS Time Tags
External GSM/GPRS, cell phone support	Supported for Internet-based correction streams (VRS, IBSS) – directly using the external SNM940
Internal MSK Beacon receiver	Frequency range 283.5–325.0 kHz Channel spacing 500 Hz MSK bit rate 50, 100, and 200 bps Demodulation minimum shift key (MSK).

Bluetooth®

YOUR SITECH® HEAVY CIVIL CONSTRUCTION TECHNOLOGY PROVIDER

Trimble Heavy Civil Construction
10368 Westmoor Drive
Westminster, Colorado 80021 USA
800-361-1249 (Toll Free)
+1-937-245-5154 Phone
construction_news@trimble.com

Trimble

construction.trimble.com

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