



The Turnkey RTK Receiver



Features

- Easy to use and lightweight GNSS receiver
- Real-time precision ranging from meter to centimeter
- Multi-application positioning sensor

Accurate, Easy To Use And Lightweight

The Sagitta receiver from Magellan is intended for small and medium-scale marine surveys for which position precision and ease of use are equally important. Sagitta offers real-time precision ranging from the meter to the centimeter level, depending on how it is operated (Operating modes available include: WAAS/EGNOS, DGPS, EDGPS, KART or LRK®).

Its fast 10-Hz (raw data) and 20-Hz (computed data) output rates make it the ideal tool for many types of kinematic applications such as bathymetry or coastal works, sea trials or trajectory. Surprisingly, for its size, Sagitta boosts levels of performance comparable to those of the most sophisticated equipment available today. Thanks to its low weight and small size, it can easily be carried from site to site.

Flexible

Sagitta comes in two versions: single-frequency and dual-frequency. Its 16-channel GNSS differential core is housed in a single, versatile unit that can be combined with additional optional software or hardware to meet a variety of requirements: screen & keypad (TRM100), UHF or HF/MF radio (U-Link or HM-Link transmitter/receiver), etc.

Benefiting from a high degree of flexibility in its design, Sagitta can also be used as a reference station. You just need to add a U-Link station kit to deliver UHF signals over distances of 40 km or more. To even more increase your project flexibility Sagitta is also compatible with several data format (RTCM, Magellan, CMR/CMR+).

Extended Performance

Sagitta now also offers a unique full BACKUP™ feature where a second position fix is computed to guarantee an extreme position availability. With our dual-frequency LRK kinematic processing technology - today a standard renowned for its outstanding performance - Sagitta provides fast, reliable, real-time centimeter-level positioning combined to a fully operational radio link up to 40 km. With LRK, you will be able to work at greater distances than conventional RTK.

Sagitta Technical Specifications

Applications

- High-Precision Positioning
- Marine Surveying
- Trajectory

Sagitta Configurations

	Standard Features	Firmware Options	Hardware Options
Sagitta-01	Compact-case receiver NAP 001 antenna with standard supply Firmware: DGPS, EDGPS, BACKUP	KART REFSTATION RELATIVE OTF	Rx 4812 U-Link Reception Module Rx 1635 HM-Link Reception Module (x1) Tx 4800 U-Link Transmission Module TRM100 keyboard & screen
Sagitta-02	Compact-case receiver NAP 002 antenna with standard supply Firmware: DGPS, EDGPS, BACKUP	KART LRK REFSTATION RELATIVE OTF	Rx 4812 U-Link Reception Module Rx 1635 HM-Link Reception Module (x1) Tx 4800 U-Link Transmission Module TRM100 keyboard & screen

Standard Supply List

- NAP 001 or NAP 002 geodetic antenna;
Diameter: 143 mm (5.63");
Weight: 0.35 kg (0.77 lb)
- Power cable, RS232 serial cable (x 1)
- Receiver mounting kit

Performance Figures¹

Real-Time Centimeter LRK Mode (L1/L2)

- Operating range up to 40 km (5 SVs or more)
with OTF kinematic initialization
- OTF initialization time: 30 seconds, typical
- Precision:
 - In KR Fast Mode
(20 Hz max. and 5-ms latency):
10 mm + 0.5 ppm, XY;
20 mm + 1.0 ppm, Z
 - In KA Synchronous Mode
(1 Hz and 1-s latency):
5 mm + 0.5 ppm, XY;
10 mm + 1.0 ppm, Z

Real-Time Centimeter KART Mode (RTK L1)

- Operating range up to 12 km (5 SVs or more)
with OTF kinematic initialization
- OTF initialization time: 10 minutes, typical
- Precision: same as LRK Mode

Real-Time Decimeter EDGPS Mode

- No operational limits of distance; U-LINK
radio reception required
- Data convergence time: 2 minutes, typical
- Precision: 20 cm + 2 ppm, XYZ

Real-Time Metric WAAS/EGNOS Mode

- Service area as defined for the system of
satellites used. The different systems
available are: WAAS in North America,
EGNOS in Europe and MSAS in Japan
- Precision: 1 to 2 meters, XY; 3 meters, Z

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Technical Specifications

GPS/GNSS

- 16 x L1 channels - 12 x L2 channels
(Sagitta-02 only)
- C/A code and L1 phase, P code and L2
phase with multi-path processing
- Differential modes: WAAS/EGNOS, Numeric
RTCM Version 2.2, messages 1,3, 5, 9,
16, 18 & 19

Raw Data:

10 Hz output rate

Computed Data:

- 20 Hz output rate - Latency < 5 ms (0.005 s)
- User Coordinate System:
-Local datum, projection, geoid model

Interface

- GPS and Radio Antenna connectors:
all female TNC
- 3 two-way I/O ports (one RS232, two RS422)
with baud rates from 1200 to 115200 bauds
- AUX port (1 PPS output, external event
input, RTCM input on RS422, etc.)
- TRM100 display also available on VGA output
- NMEA 0183 messages: RTCM, Magellan
format, CMR/CMR+
- User messages via ConfigPack™

Electrical

- Power source: 9 to 36V DC, floating input
- Consumption (mobile receiver): 7 to 15 W
(Sagitta-01); 8 to 16 W (Sagitta-02)

Environmental

- IP 52 compliant, rigid aluminum case
- Operating temperature range: -20 to +55°C
(antennas: -40 to +70°C)
- Storage temperature range: -40 to +70°C
- Vibration: EN 60945 & ETS 300 019
(Shocks)
- EMI: EN60945, Class B FCC Part15

Physical

- H x W x D: 65 x 265 x 215 mm
(2.56 x 10.43 x 8.46")
- Weight: 2 kg (4.41 lb)

Radio Module Options

Tx 4800 U-Link UHF Transmission

- Transmission module operating in UHF band
410 to 470 MHz
- Data formats: LRK (RTK) and RTCM
- Modulation type: GMSK at 4800 bits/s
- Radiated power: 4W or 0.5W (according to
local authorization)
- CXL-70 3 dB antenna
- Norm ETS 300-113 - Certified in Europe,
the US and most other countries
- R & TTE 1999/5/CE
- EMI specifications: EN60945

Rx 4812 U-Link UHF Reception (built-in module)

- Reception module operating in UHF band
410 to 470 MHz
- Reception module designed to be
integrated into the receiver
- Modulation type: GMSK 4800 bits/s or
DQPSK 1200 bits/s (NDS 100 type)
- CXL-70 3 dB antenna

Rx 1635 HM-Link HF/MF Reception (1 built-in module)

- Reception module designed to be integrated
into the receiver
- Dual-channel in HF band 1.6 to 3.5 MHz;
BCPSK modulation (NDS 200 type)
- Dual-channel in MF band 270 to 330 kHz;
MSK modulation
- DHM 5000 dual-band antenna - H x
Diameter: 245 x 135 mm (9.64 x 5.31")

TRM100 Keyboard & Screen Option

- 1/4 VGA screen and keyboard terminal
- Dimensions (H x W x D):
125 x 255 x 40 mm (4.92 x 10.0 x 1.57")
- One-meter cable for connection of TRM100
unit to receiver
- TRM100 mounting kit



TRM 100 keyboard/screen terminal

¹ All performance figures are 1 RMS values based on test conducted in Nantes, France, in normal conditions of GPS receptions, (normal ionospheric activity, 5 SVs used and HDOP < 4) on a clear site.

¹ Tests in different locations under different conditions may produce different results.



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