



THE TURNKEY RTK RECEIVER

Sagitta

ACCURATE, EASY TO USE AND LIGHTWEIGHT

The Sagitta receiver is intended for small -and medium- scale marine surveys for which position precision and ease of use are equally important. Thanks to its low weight and small size, it can easily be carried from site to site.

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.

A HIGH-PERFORMANCE MOBILE OR REFERENCE STATION

As a mobile, 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, 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 trajectography.

Surprisingly, for its size, Sagitta boasts levels of performance comparable to those of the most sophisticated equipment available today.

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 30 miles or more.

TECHNICAL SPECIFICATIONS

APPLICATIONS

- High-Precision Positioning
- Marine Surveying
- Trajectorygraphy

MAIN FEATURES

- L1/L2 LRK® centimeter real-time positioning (Sagitta-O2)
- L1 KART centimeter real-time positioning (Sagitta-O1)
- User Coordinate System:
 - Local datum, projection, geoid model

Aquarius Configurations and Standard Supply

	Standard Features	Firmware Options	Hardware Options
Sagitta-O1	Compact-case receiver NAP 001 antenna with standard supply Firmware: DGPS, EDGPS	KART REFSTATION RELATIVE OTF	Rx 4812 U-Link Reception Module OR Rx 1635 HM-Link Reception Module (x1) Tx 4800 U-Link Transmission Module TRM100 keyboard & screen
Sagitta-O2	Compact-case receiver NAP 002 antenna with standard supply Firmware: DGPS, EDGPS	KART LRK® REFSTATION RELATIVE OTF	Rx 4812 U-Link Reception Module OR 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), RS422/RS232 adaptor
- Receiver mounting kit

PERFORMANCE FIGURES⁽¹⁾

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:
 - 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 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

Raw Data: 10 Hz output rate

Computed data: 20 Hz output rate - Latency < 5 ms (0.005 s)

TECHNICAL SPECIFICATIONS

GPS/GNSS

- 16 x L1 channels (Sagitta-O1 & O2)- 12 x L2 channels (Sagitta-O2 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

Interfaces

- 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 remote display via VGA output
- NMEA 0183 messages: GGA, GLL, VTG, GSA, ZDA, RMC, GRS, GST, GSV, GMP
- User messages via ConfigPack

Electrical

- Power source: 9 to 36V DC, floating input
- Consumption (mobile receiver): 7 to 15 W (Sagitta-O1); 8 to 16 W (Sagitta O2)

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: EN 60945

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)

FIRMWARE OPTIONS

- KART - Single-frequency OTF kinematic processing
- LRK® - Dual-frequency OTF kinematic processing
- REFSTATION - Processing of corrections in DGPS or KART/LRK® mode
- RELATIVE OTF - Determination of non-fixed relative baseline between two mobiles

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 (1 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

- ¼ 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

(1) All performance figures are 1σ RMS values measured in normal conditions of GPS reception (normal ionospheric activity, 5 SVs used and HDOP < 4) on a clear site.

Thales Navigation

Corporate Headquarters, Santa Clara, USA +1 408 615 5100 • Fax +1 408 615 5200
 In Washington, D.C. +1 703 476 2212 • Fax +1 703 476 2214
 In South America +56 2 234 56 43 • Fax +56 2 234 56 47
 Email sales@ashtech.com

European Sales Headquarters, France +33 2 28 09 38 00 • Fax +33 2 28 09 39 39
 In Germany +49 81 6564 7930 • Fax +49 81 6564 7950
 In Russia +7 095 956 5400 • Fax +7 095 956 5360
 In The Netherlands +31 78 61 57 988 • Fax +31 78 61 52 027
 In the U.K. +44 1993 8867 66 • Fax +44 1993 8867 67
 Email info@thales-navigation.com
 Website www.ashtech.com

THALES Navigation follows a policy of continuous product improvement; specifications and descriptions are thus subject to change without notice.
 The US policy for GPS signal control (Selective Availability) was discontinued on 2 May 2000, but can be re-established without prior notification to users.

Local distributor