



Key Features

- ▶ **544 channels for all-in-view signal tracking**
- ▶ **Robust RTK position accuracy and L-band support**
- ▶ **The most advanced radio interference mitigation technology**
- ▶ **Latest UHF radio technology for stable connections over long distances**
- ▶ **Longest battery life on the market delivering 12-14 hours of functionality**
- ▶ **All-in-one with base and rover functionality**

The Altus APS3G is the newest high precision GNSS receiver for the modern surveyor. With an integrated UHF radio and the latest GNSS technology, the Altus APS3G guarantees superior accuracy, improved performance, longer battery life and higher flexibility on site no matter the environment.

Intelligent, Modern Solution

Designed for effortless handling and operation, the Altus APS3G delivers more than a day's functionality thanks to its unique power efficiency. Furthermore, the front LED panel allows for easy status monitoring.

The Altus APS3G is a GNSS receiver which will boost the productivity of any survey data collection project. Robust mobile-phone technology provides hassle free real time network connection on demand while the latest UHF radio enables users to work over longer distances.

Outstanding performance

With Septentrio's latest RTK engine, the Altus APS3G calculates an accurate and reliable position every time. RTK cm-level position accuracy is guaranteed over longer distances and even during elevated ionospheric activity thanks to Septentrio's IONO+ technology. The Altus APS3G's advanced interference mitigation (AIM+) technology offers the best resilience against unintentional and intentional radio interference.

Flexible and Open Technology

Septentrio's open technology allows the Altus APS3G to be fully compatible with all other hardware and software solutions thus maximising the use of existing equipment and driving down the cost of ownership. The Altus APS3G is easily adaptable from a data collector via Bluetooth for both Base and Rover operation.

FEATURES

GNSS Technology

544 hardware channels for all-in-view signal tracking

Supported signals¹: GPS (L1, L2, L5), GLONASS (L1,L2,L3), Galileo (E1BC, E5a, E5b, AltBoc), BeiDou (B1, B2), IRNSS (L5), QZSS (L1,L2,L5); Galileo, BeiDou and IRNSS are optional features.

All-in-view SBAS (EGNOS, WAAS, GAGAN, MSAS, SDCM) (incl. L5 tracking)

Integrated L-band receiver

Up to 25 Hz SBAS, DGNSS, PPP and RTK²

RAIM

DGNSS (base station and rover)

RTK (base station and rover)

TerraStar services (optional feature)

Septentrio's GNSS+ patented technologies:

- APME+ Multipath mitigation technology
- WIMU interference mitigation unit including mitigation of chirp jammers and AIM+ technology
- ION+ Advanced ionospheric scintillation mitigation
- Track+ for robust tracking under weak signal conditions
- RTK+ multi-system cm-accurate positioning engine
- GLO+ special ultra-precise GLONASS bias calibration

Connectivity

Integrated Quad-Band Cellular Modem (EDGE, 2G, 3G, 3.5G) - 850/900/1800/1900 MHz

Improved UHF transceiver, 406-470 MHz

With Control Software: NTRIP (v1 and v2), Direct IP, Data call (CSD)

Integrated Bluetooth (Class 2)

1x 5-pin Lemo connector:

- Serial communication (Controller/PC)

1 x 8-pin Lemo connector:

- Serial communication for external radio

Data formats and Storage

Removable memory support: SD (up to 32 GB)

NMEA v2.30, NMEA 3.01 and NMEA 4.0 output format

Highly Compact and fully documented Septentrio Binary Format (SBF) output

Corrections input and output:

- RTCM v2.2, 2.3, 3.0 or 3.1 and 3.2 (including all MSM)
- CMR and CMR+ (CMR+ input only)

MODELS

Altus APS3G: RTK Rover and Base functionality with additional extra SW features

Altus APS3G-X: Altus APS3G with additional external GNSS antenna connector

Altus APS3G-g: variant with external GSM antenna for enhanced signal reception

PERFORMANCE

Position Accuracy^{3,4}

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.9 m
TerraStar-D ⁵	6 cm	<10 cm

RTK Performance^{3,4,6,7}

Horizontal accuracy	0.6 cm + 0.5 ppm
Vertical accuracy	1 cm + 1 ppm

Velocity Accuracy³

	Horizontal	Vertical
	0.01 m/s	0.015 m/s

Static and rapid static

Horizontal	3 mm + 0.5 ppm
Vertical	5 mm + 0.5 ppm

Static high precision⁸

Horizontal	3 mm + 0.1 ppm
Vertical	3.5 mm + 0.4 ppm

Maximum Update Rate²

Position (RTK)	up to 25 Hz
Measurements	up to 25 Hz

Time to First Fix

Average Time to Fixed RTK ⁹	< 7 s
Cold start ¹⁰	< 45 s
Warm start ¹¹	< 20 s
Re-acquisition	avg. 1.2 s

Dynamics

Acceleration	10 g
Jerk	4 g/s

STANDARD SYSTEM COMPONENTS

Altus APS3G

- 2 x Lithium Ion Batteries
- 1 x LEMO 4-pin Power Cable
- 1 x LEMO 5-pin to Female DB9 Serial Controller Cable
- 1 x 2GB SD Card
- 1 x APS3G Battery Charger with AC Adapter Power Supply
- 1 x USB key containing Altus APS3G documentation
- 2 x UHF radio antennas (406-430 MHz & 440-470 MHz)

PHYSICAL AND ENVIRONMENTAL

Size	178 x 89.7 mm (7.0 x 3.5 in)
Weight¹²	1.16 kg (2.5 lb)
Internal battery	2 x 7.4V, 5000 mAh (Li-ion)
Battery life time¹³	12-14 hours
Current drain	1.0 to 1.5A, peak 2.75A
External power input¹⁴	10-30 V DC
Power consumption	4 W Typical
Operating temperature¹⁵	-20 °C to +65 °C (-4°F to 149°F)
Storage temperature	-40 °C to +75 °C (-40°F to 167°F)
Shock/drop	2 m (6.6 ft)
Certification	CE, FCC Class B Part 47
Waterproofing	IP67

COMPATIBLE SOFTWARE

- Septentrio FieldGenius Collection Software
- Full Carlson Software SurvCE Support
- Support for a large variety of controllers, survey and GIS collection software applications and post-processing solutions
- Mobile PinPoint-GIS App for easy monitoring and control allowing to override location of multiple Android applications
- RxTools including APS3G Tools for easy data analysis, monitoring and advanced control

- 1 IRNSS and Galileo are future upgradable for PVT/RTK usage
- 2 Standard rate 20 Hz (25 Hz optional for PVT over Bluetooth and measurements logged internally)
- 3 1-25 Hz measurement rate
- 4 Performance depends on environmental conditions
- 5 Requires service activation from TerraStar
- 6 1σ level
- 7 RTK Fixed ambiguities
- 8 Long occupations and precise ephemeris
- 9 Baseline: <20 km
- 10 No information available (no almanacs, no approximate position)
- 11 Ephemeris and approximate position known
- 12 1.36 kg (2.9 lbs) with internal batteries
- 13 Depends on environmental factors and configuration
- 14 Power can be provided via Lemo connector with dedicated cable
- 15 At temperatures lower than -20 °C (-4 °F) external battery may be needed.

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