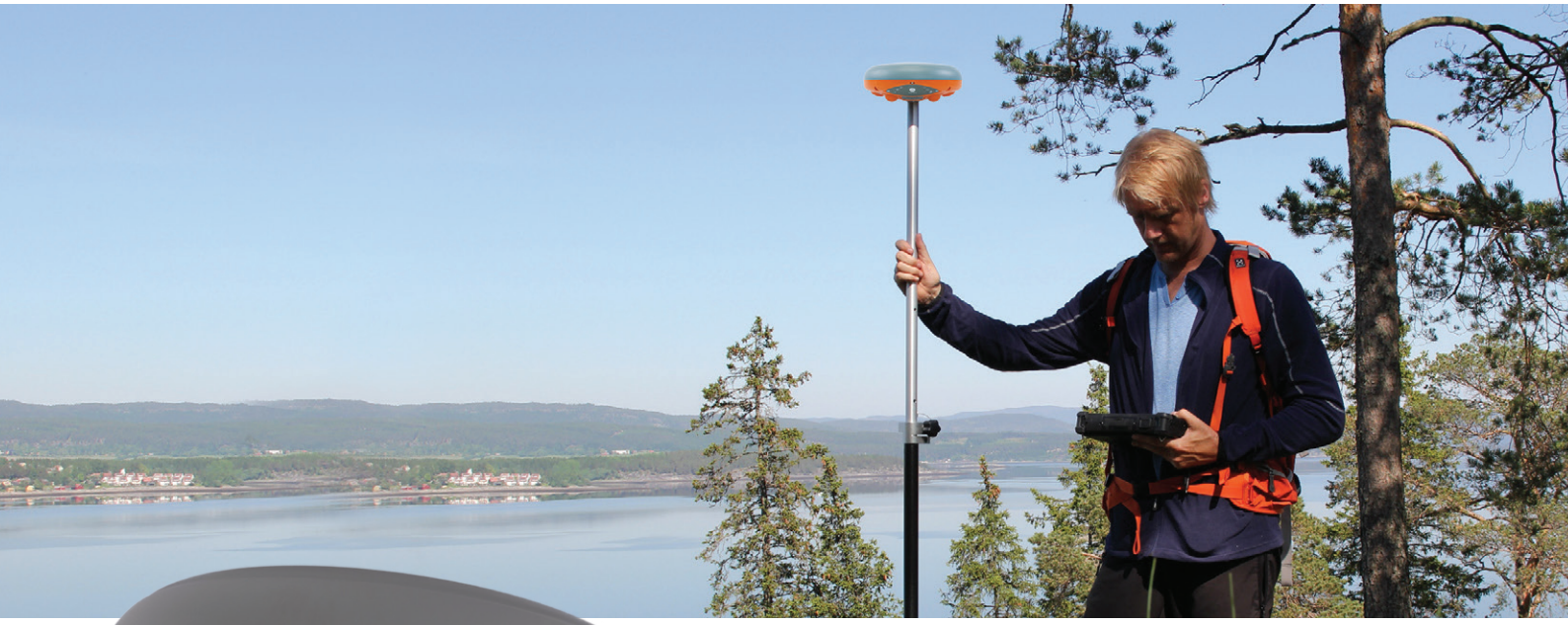
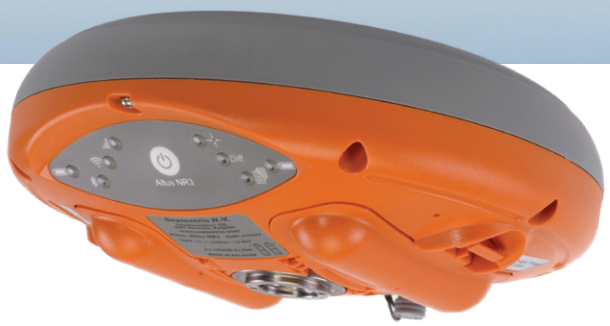
Altus NR3

Compact GNSS Rover for Surveying & GIS Applications

septentrio





The Altus NR3 combines easy-to-use, quad-constellation RTK with an unrivalled communications toolset for a successful survey and GIS project every time.

Key Features

- **Robust, light and portable GNSS receiver**
- **Quad-constellation, multi-frequency, all-in-view RTK positioning**
- **AIM+ anti-jamming and monitoring system**
- **Easy setup and one-touch logging**
- **All-in-one base and rover operation**

Exceptional Performance and Reliably

Quad-constellation, multi-frequency RTK that sets the new standard in positioning performance. It includes APME+ industry-leading multipath technology and IONO+ to ensure position accuracy under the most intense ionospheric activity. These features together with LOCK+, to maintain tracking during mechanical shocks or vibrations, combine to offer the best possible quality of measurements for Altus NR3's GNSS position calculations.

Interference Robustness

The Altus NR3's AIM+ is quite simply, the most advanced on-board anti-jamming technology on the market. It can suppress the widest variety of interferers, from simple continuous narrowband signals to the most complex wideband and pulsed jammers. The RF spectrum can be viewed on the Web UI in real-time in both time and frequency domains.

Use Your Own Device

Thanks to Septentrio's open architecture, the Altus NR3 is fully compatible with leading third-party hardware and software solutions thus maximising the use of existing equipment while driving down the cost of ownership over the lifetime of the device.

Collection Made Simple

Unify high-accuracy GNSS data with the power of data collection using either SurvCE or PinPoint Data collector. SurvCE allows advanced survey data collection while PinPoint-GIS enables simple data collection from the Altus NR3 directly to the cloud.

Altus NR3

FEATURES

GNSS Technology

448 hardware channels for simultaneous tracking of all visible satellite signals

Supported signals:

- GPS: L1, L2, L5
- GLONASS: L1, L2, L3
- Galileo[1]: E1, E5a, E5b, AltBoc
- BeiDou[1]: B1, B2
- SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5)
- IRNSS[1]: L5
- QZSS: L1, L2, L5

DGNSS and RTK (base and rover)[1]

Septentrio's GNSS+ patented technologies:

- AIM+ unique anti-jamming and monitoring system against narrow and wideband interference
- IONO+ advanced scintillation mitigation
- APME+ a posteriori multipath estimator for code and phase multipath mitigation
- RAIM (Receiver Autonomous Integrity Monitoring)
- LOCK+ superior tracking robustness under heavy mechanical shocks or vibrations

Connectivity

Integrated Bluetooth (2.1 + EDR/4.0)

Integrated WiFi (802.11 b/g/n) access point and client mode[2]

4G LTE Cat 1 (band 2, 4, 5, 12, 17), 3G UMTS/HSPA (850/900/1900/2100), 2G Quad Band GPRS/EDGE

Dynamic DNS[2] and remote access to receiver

NTRIP (v1 and v2) client, server and caster

Direct IP and Data call (CSD) calling and accepting mode[2]

1 x 9-pin Lemo connector for:
- Full-speed USB (host - with access to internal disk, TCP/IP communication and with 2 extra serial ports)
- 1 High-speed serial port (RS232) ideal for external UHF radio or custom integrations[3]

Data formats and storage

16 GB internal memory

NMEA 0183 v2.3, v3.01 and v4.0 output

Septentrio Binary Format (SBF), fully documented and with sample parsing tools

Corrections input and output:
- RTCM v2.x and 3.x (MSM included)
- CMR v2.0 and CMR+ (CMR+ input only)

MODELS

Altus NR3 Full-Const: All-constellations RTK network rover and base

Altus NR3 C: GPS/GLO RTK network rover and base

Altus NR3 Base: RTK Base station only

PERFORMANCE

Position accuracy [4,5]

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.3 m	0.7 m

RTK performance[1,4,5,6]

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

Velocity accuracy [4,5]

3 cm/s

Static and rapid static

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

Static high precision[7]

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

Maximum update rate[8]

Position (Standalone, SBAS, DGNSS)	20 Hz
Position (RTK)	10 Hz
Measurements only	20 Hz

Time to First Fix

Average Time to Fixed RTK	< 7 s
Cold start[9]	< 55 s
Warm start[10]	< 30 s
Re-acquisition	avg. 1 s

Tracking performance (C/N0 threshold)

Tracking	20 dB-Hz
Acquisition	33 dB-Hz

STANDARD SYSTEM COMPONENTS

1 x Altus NR3
4 x Lithium-ion batteries (standard 18650 Li-ion batteries with protection circuit)
1 x USB data cable
1 x Altus NR3 Battery Charger (4-battery capacity)
1 x battery charger cable for cigarette lighter

PHYSICAL AND ENVIRONMENTAL

Size	167 x 69 mm (6.5 x 2.7 in)
Weight[11]	820 g (1.8 lb)
Internal battery	2 x 3.6 V, 3400 mAh (Li-ion)
Battery lifetime[12]	6 hours
External power input[3]	9–30 V DC
Operating temperature[13]	-30 °C to +75 °C (-22 °F to 167 °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 15
Waterproofing	IP67

COMPATIBLE SOFTWARE

- Embedded Web UI with full control and monitoring functionality
- Full support for Carlson SurvCE
- Support for a large variety of survey, GIS and post-processing software applications
- Mobile PinPoint-GIS App for basic data collection, easy monitoring and control allowing overriding location of Android GNSS applications
- On board data collection using either Septentrio's PinPoint-GIS CSV point data collection[1] or Esri's ArcGIS® Online[14]

1 Optional feature
2 Allows communication between Base and Rover
3 Power and serial communication provided from Lemo connector with dedicated cable
4 Performance depends on environmental conditions
5 RMS level
6 Baseline <20 km (12.4 miles)
7 Long occupations and precise ephemeris
8 Update rate via Bluetooth limited to 10 Hz
9 No information available (no almanacs, no approximate position)
10 Ephemeris and approximate position known
11 Weight: 740 g (1.6 lb.) without batteries
12 Unlimited operation time thanks to hot-swappable batteries
13 At temperatures below -20° C (-4 °F), an external power supply may be required
14 Requires an ArcGIS® Online subscription

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