

# Altus NR2

Compact GNSS rover for GIS and surveying



## Key Features

- ▶ **Lightweight and portable**
- ▶ **Robust, modern communications systems including an on-board WiFi modem**
- ▶ **Best in class for reliable centimetre-level RTK accuracy**
- ▶ **Advanced Web UI for easy monitoring and configuration**
- ▶ **On-board GIS data collection**
- ▶ **All-in-one with base and rover functionality**

The Altus NR2 combines easy-to-use RTK technology with an unrivalled communications tools for a successful surveying or GIS project every time. The Altus NR2 is best-in-class for reliable GNSS performance in difficult environments. It is straightforward to configure through the Web UI. Full compatibility with PinPoint-GIS brings GNSS data collected by the Altus NR2 seamlessly to your mobile or tablet device.

### Best possible signal coverage

Signal quality is always an issue out in the field but Septentrio's advanced suite of technologies has it covered: industry leading multipath technology (APME+) and IONO+ technology against elevated ionospheric activity. These features together with advanced Iono modelling combine to offer the best possible quality measurements for Altus NR2's GNSS position calculations.

### Connectivity in the field

Never lose the connection out in the field thanks to the Altus NR2's advanced integrated communication capabilities. The built-in Bluetooth enables rapid data streaming while the internal GSM/GPRS modem provides data corrections and internet connectivity.

### Any device, any platform

Thanks to Septentrio's open architecture, the Altus NR2 is fully compatible with most common 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.

### GIS made simple

Unify GNSS data collection and the power of GIS into one utility by having PinPoint-GIS by your side. PinPoint-GIS enables rapid GIS data transfer collected by the Altus NR2 directly into the cloud.

PinPoint-GIS web is available on your own device via the Altus NR2's Web UI. In addition, you can monitor basic operations and position accuracy using the PinPoint-GIS app available on Google Play.

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## FEATURES

### GNSS Technology

132 hardware channels for simultaneous signal tracking

Dual-frequency L1/L2 code/carrier tracking of GPS and GLONASS signals.

All-in-view SBAS (EGNOS, WAAS, GAGAN, MSAS, SDCM)

RTK/DGNSS Rover & Base

RAIM

Septentrio's GNSS+ patented technologies:

- APME+ Multipath mitigation technology
- IONO+ Advanced ionospheric scintillation mitigation
- Track+ for robust tracking under weak signal conditions
- RTK+ a novel, multi-system centimetre-accurate positioning engine
- GLO+ a special ultra-precise GLONASS bias calibration

### Connectivity

Integrated Bluetooth (2.1 + EDR/4.0)

Integrated Wi-Fi (802.11 b/g/n) access point and client mode (also allowing Rover/Base setup)

Integrated quad-band cellular modem (EDGE, 2G, 3G, 3.5G) - 850/900/1800/1900 MHz

NTRIP (v1 and v2), direct IP, data call (CSD) calling and accepting mode<sup>1</sup>

Dynamic DNS for remote access and Base/Rover setup

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<sup>2</sup>

### Data formats and storage

- 8 GB internal memory
- 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 MSM)
- CMR and CMR+ (CMR+ input only)

### Models

#### • Altus NR2 C:

All features for full RTK Rover and Base functionality

#### • Altus NR2 M:

For metre and sub-metre applications (DGPS included)

#### • Altus NR2 Base:

Base only model to be combined with Altus NR2 C or M

## PERFORMANCE

### Position Accuracy<sup>3,4,5</sup>

	Horizontal	Vertical
Standalone	1.2 m	1.9 m
SBAS	0.6 m	0.8 m
DGNSS	0.4 m	0.9 m

### RTK Performance<sup>4,5,6,7</sup>

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

	Horizontal	Vertical
Velocity Accuracy <sup>3</sup>	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 precision<sup>8</sup>

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

### Maximum Update Rate

Position (Standalone, SBAS, DGNSS) <sup>9</sup>	20 Hz
Position (RTK)	10 Hz
Measurements	20 Hz

### Time to First Fix

Average Time to Fixed RTK <sup>6</sup>	< 7 s
Cold start <sup>10</sup>	< 60 s
Warm start <sup>11</sup>	< 30 s
Re-acquisition	avg. 1.2 s

### Dynamics

Acceleration	10 g
Jerk	4 g/s

### Standard System Components:

- ▶ Altus NR2
- ▶ 4 x Lithium Ion Batteries
- ▶ 1 x USB data cable
- ▶ 1 x AC Adapter LEMO 9-pin Power Cable
- ▶ 1 x Altus NR2 Battery Charger
- ▶ 1 x battery charger with ac adapter power supply
- ▶ 1 x battery charger cable for cigarette lighter



## PHYSICAL AND ENVIRONMENTAL

<b>Size</b>	167 x 69 mm (6.6 x 2.7 in)
<b>Weight<sup>12</sup></b>	780 g (1.7 lb)
<b>Internal Battery</b>	2 x 3.6V, 3400 mAh (Li-ion)
<b>Battery life time<sup>13</sup></b>	6 hours
<b>Current drain</b>	1.0 to 1.5 A, peak 3.5 A
<b>External Power input<sup>2</sup></b>	9-30 V DC
<b>Power Consumption</b>	7 W Typical
<b>Operating temperature<sup>14</sup></b>	-30 °C to +75 °C (-22 °F to 167 °F)
<b>Storage temperature</b>	-40 °C to +75 °C (-40 °F to 167 °F)
<b>Shock/Drop</b>	2 m (6.6 ft)
<b>Certification</b>	CE, FCC Class B Part 15
<b>Waterproofing</b>	IP67

## OPERATIONAL SYSTEM COMPONENTS

- ▶ Embedded Web UI with full control and monitoring functionality
- ▶ Septentrio FieldGenius data collection software
- ▶ Full Carlson SurvCE support
- ▶ Support for a large variety of controllers, survey and GIS collection software applications and post-processing solutions
- ▶ Embedded data collector (PinPoint-GIS Web) for direct GIS data collection to Esri's® ArcGIS® Online
- ▶ Mobile PinPoint-GIS App for easy monitoring and control allowing to override location of Android GNSS applications

- 1 Data call useful in areas with poor internet connection
- 2 Power and serial communication provided via Lemo connector with dedicated cable
- 3 1 Hz measurements rate
- 4 Performance depends on environmental conditions
- 5 1σ level
- 6 Baseline <20 km (12.42 miles)
- 7 RTK Fixed ambiguities
- 8 Long occupations and precise ephemeris
- 9 Update rate via Bluetooth limited to 10 Hz
- 10 No information available (no almanacs, no approximate position)
- 11 Ephemeris and approximate position known
- 12 Weight: 700 g (1.5 lb) without batteries
- 13 Unlimited operation time thanks to hot-swap functionality
- 14 At temperatures lower than -20° C (-4 °F) an external battery may be needed

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