Carlson NR3
GNSS Receiver

*The **Carlson NR3** is a compact GNSS Smart Antenna designed for Network Rover applications. The NR3 and a prism make a light weight survey pole assembly to utilize **SurvCE/PC 6.0** with Hybrid+ for simultaneous GNSS and Robotic Total Station surveys.*

KEY FEATURES

- GPS, GLONASS, BeiDou, Galileo
- Light weight 820 g (1.8 lbs)
- Hot-Swap Batteries
- 4G LTE Cellular Modem
- Wi-Fi 802.11 b/g/n
- Bluetooth 2.1 + EDR
- 16 GB Internal Memory

GNSS Technology

The NR3 utilizes 4 constellations to produce reliable GNSS RTK, with triple-frequency tracking on GPS, GLONASS and Galileo. The solution incorporates multipath and ionospheric detection algorithms to maintain accuracy, while exhibiting stable satellite tracking during shocks or vibration. The lightweight NR3 receiver may be used as a Base or Rover.

Wireless Communications

The NR3 has an integrated 4G LTE cellular modem, Wi-Fi and Bluetooth for modern wireless capabilities. Carlson's Listen-Listen service allows Base/Rover operation via the cellular modem for better correction transmission ranges compared to traditional terrestrial UHF radios.

SurvCE/SurvPC

The new Hybrid+ feature allows simultaneous interaction with GNSS and a Robotic Total Station, with the GNSS and prism both mounted on the survey pole.

Hybrid+ provides increased Quality Control as there are two instruments measuring the same point. In addition, GNSS position at the pole allows a faster prism acquisition than traditional searching, as well as improved tracking.

Hybrid+ allows easy setup anywhere using GNSS coordinates, and minimizes common survey challenges from stray reflectors, false fixes and obstructions.

BREAK NEW GROUND

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GNSS Receiver

Satellite Tracking:	GPS: L1, L2, L5
	GLONASS: L1, L2, L3
	Galileo1: E1, E5a, E5b, AltBoc
	BeiDou1: B1, B2
	SBAS: EGNOS, WAAS, GAGAN, MSAS, SDCM (L1, L5)
	IRNSS1: L5
	QZSS: L1, L2, L5
Channels:	448
Update Rates:[8]	RTK Positions 10 Hz
	Measurements 20 Hz

Performance[4,5]

	Horizontal	Vertical
RTK:[1,4,5,6]	6 mm + 0.5 ppm	10 mm + 1 ppm
DGNSS	0.3 m	0.7 m
SBAS:[1]	0.6 m	0.8 m
Standalone:[1]	1.2 m	1.9 m
Static & Rapid Static:	3 mm + 0.5 ppm	5 mm + 0.5 ppm
Static High Precision:[7]	3 mm + 0.1 ppm	3.5 mm + 0.4 ppm
Time To First Fix:		
Fixed RTK:	<7 s	
Cold Start:[9]	<55 s	
Warm Start:[10]	<30 s	
Re-acquisition:	avg. 1 s	

Communications

Connectors I/O:	1 x 9-pin Lemo, USB, TCP/IP with 2 x Serial Ports, 1 x High Speed Serial Port, Power
Wi-Fi:	802.11 b/g/n
Bluetooth:	2.1 + EDR/4.0
Cellular:	4G LTE Cat1 (band 2,4,5,12,17), 3G UMTS/HSPA (850/900/1900/2100), 2G QuadBand GPRS/EDGE"

Power

Battery:	2 x 3.6 V, 3400 mAh Li-Ion
Battery Life:[12]	6 hours, continuous with hot-swap
External Power:[3]	9 to 30 VDC

Memory

Memory:	16 GB Internal

Environmental

Operating Temperature:[13]	-30 °C to +75 °C (-22 °F to 167 °F)
Storage Temperature:	-40 °C to +80 °C (-40 °F to 17 °F)
Waterproof / Dustproof:	IP67
Certification:	CE, FCC Class B Part 1
Shock / Drop:	2 m pole drop on concrete floor

Mechanical

Size:	167 D x 69 H mm (6.5 D x 2.7 H in)
Weight:	<.820 kg (1.8 lbs)

Standard NR3 System Parts

1 x Carlson NR3
4 x Li-Ion Batteries
1 x USB data cable
1 x Carlson NR3 Battery Charge
1 x Battery Charger Power Cable for cigarette lighter

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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.

810-201-51