BRx7
GNSS Receiver

The BRx7 is Carlson's all-new multi-GNSS, multifrequency smart antenna. The BRx7 provides robust performance and high precision in a compact, rugged package with tilt compensation ability. With multiple wireless communication ports and an open GNSS interface, the BRx7 can be used in a variety of operating modes.

Use the BRx7 as a precise network rover to work with your GNSS VRS network, or set up your BRx7 as an easy-to-use base-rover package with industry-leading performance via the internal long range and spread-spectrum radio or cellular communication via Carlson's Listen-Listen, a unique cloud-based low latency service that eliminates baseline length restrictions of UHF radios. With only an Internet connection, you can enjoy a simple, easy-to-use base-rover solution that can also support a single base with multiple simultaneous rover connections.

The BRx7 provides state-of-the-art RTK performance when receiving corrections from a static base station or network RTK correction system. With multiple connectivity options, the BRx7 allows for RTK corrections to be received over radio, cell modem, Wi-Fi, Bluetooth, or serial connection. The BRx7 delivers centimeter-level accuracy with virtually instantaneous initialization times and cutting edge robustness in challenging environments.

The BRx7 also features proprietary SureFix® technology to provide high fidelity information about the quality of the RTK solution, allowing enhanced and improved RTK accuracy, availability, and precision.

The built-in web user interface (WebUI) can be used to monitor and control the receiver status and operation, as well as to upgrade the BRx7 with new firmware and activations. The BRx7 is immune from magnetic interference, and is both Athena™ -enabled and Atlas®-capable (subscription required).

KEY FEATURES

- Multi-frequency GPS, GLONASS, BeiDou, Galileo, QZSS, IRNSS, and Atlas L-band
- Long-range RTK baselines up to 50 km with fast acquisition times with the use of Listen-Listen***
- UHF (400 MHz & 900 MHz), cellular, Bluetooth, and Wi-Fi wireless communication
- The BRx7 Athena GNSS engine providing best-in-class RTK performance
- Internal tilt sensor corrects collected point coordinates to within 2 cm

Carlson BRx7 GNSS Receiver - Specifications

GNSS Receiver Specifications

Receiver Type:	Multi-Frequency GPS, GLONASS, BeiDou, Galileo, QZSS, IRNSS, and Atlas L-band
Signals Received:	GPS L1CA/L1P/L1C/L2P/L2C/L5 GLONASS G1/G2/G3, P1/P2 BeiDou B1i/B2i/B3i/B10C/B2A/B2B/ACEBOC GALILEO E1BC/E5a/E5b/E6BC/ALTBOC QZSS L1CA/L2C/L5/L1C/LEX IRNSS L5 Atlas
Channels:	800+
RTK Formats:	RTCM2.1, RTCM2.3, RTCM3.0, RTCM3.1, RTCM3.2 including MSM, CMR, CMR+
Recording Intervals:	Selectable from 1, 2, 4, 5, 10 Hz (20 Hz or 50 Hz optional)

Accuracy

Positioning:	**RMS (67%)**	**2DRMS (95%)**
Autonomous, no SA:[1]	1.2 m	2.4 m
SBAS:[1]	0.3 m	0.6 m
Atlas (H10):[1,3]	0.04 m	0.08 m
RTK:[1,2]	8 mm + 1 ppm	15 mm + 2 ppm
Static Performance:[1]	2.5 mm + 1 ppm	5 mm + 1 ppm
Tilt Compensation	**(within 30°):**	2 cm (with 1.8 m pole)
	(within 60°):	5 cm (with 1.8 m pole)[4]
Initialization Time:		< 10 s

L-Band Receiver Specifications

Receiver Type:	Single Channel
Frequency Range:	1525 to 1560 MHz
Sensitivity:	-130 dBm
Channel Spacing:	5.0 kHz
Satellite Selection:	Manual and Automatic
Reacquisition Time:	15 seconds (typical)

Communications

Bluetooth:	Bluetooth 2.1 + EDR / 4.0 LE	
Wi-Fi:	802.11 b/g	
Network:	LTE FDD:	B1/B2/B3/B4/B5/B7/B8/B12/B13/ B18/B19/B20/B25/B26/B28
	LTE TDD:	B38/B39/B40/B41
	UMTS:	B1/B2/B4/B5/B6/B8/B19
	GSM:	B2/B3/B5/B8
Radio:	Frequency range:	410MHz - 470MHz and 902.4MHz - 928MHz
	Channel Spacing:	12.5 KHz / 25 KHz
	Protocol:	TrimTalk 450S, PCC EOT, TrimMark III(19200)
WebUI:	To upgrade software, manage settings, data download, via smartphone, tablet or other electronic device,configure advanced radio settings	

Connector Ports

TNC:	For connecting to UHF radio antenna
LEMO 5-pin:	For connecting to external power supply, external radio
LEMO 7-pin:	For serial port, USB
Card Slots:	For Nano SIM card and Micro SD card

Data & Storage

Storage Type:	8 GB internal, SD card up to 32 GB

Physical

Weight:	1.12 kg (1 battery), 1.25 kg (2 batteries)
Dimensions:	156 x 76 mm

Environmental

Operating Temperature:	-30°C ~ +65°C
Storage Temperature:	-40°C ~ +80°C
Protection:	IP67. Protected from temporary immersion to a depth of 1 m
Shock Resistance:	MIL-STD-81 0G, method 516.6. Designed to survive a 2 m pole drop on concrete floor. Designed to survive a 1 m free drop on hardwood floor
Humidity:	Up to 100%
Vibration:	MIL-STD-810G, method 514.6E-I
Inflammability:	UL recognized, 94HB Flame Class Rating (3) 1.49 mm
Chemical Resistance:	Cleaning agents, soapy water, industrial alcohol, water vapor, solar radiation (UV)

Electrical

Input Voltage:	9 to 28 V DC
Battery:	With removable dual battery, for single battery parameter: 7.2 V, 3400 mAh, 24.48 Wh
Working Time:	Up to 12 hours (2 batteries hot swap)

User Interface

Button:	Switch receiver on/off, broadcast current operation mode and status
LEDs:	Power, Satellite, Data Link, Bluetooth
WebUI:	Supports software updates, receiver status and settings, and data downloads via smartphones, tablets, or other Wi-Fi capable devices.

1 Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity
2. Depends also on baseline length
3. Requires a subscription from Hemisphere GNSS
4. Higher error can be observed in the GPS RTK solutions with tilts over 30°
*** Requires a subscription from Carlson Software

SurvCE/SurvPC

Carlson's SurvCE/SurvPC is combined with the BRx7 on either the Surveyor 2 field computer or RT4 Windows tablet for a full field solution. SurvCE/SurvPC has full BRx7 configuration, system status and data logging via Bluetooth. For improved quality control and efficiency, SurvCE/SurvPC features an intuitive Live Digital Level with an auto record option when the BRx7 is level. With SurvCE/SurvPC, users leverage Carlson's expert team to expand features for quality and productivity.

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