위성신호보정기지국 이용 가이드

TRIMBLE BD982 GNSS Receiver

GNSS Module

Performance specifications

Feature	Specification

Measurements	• Position antenna based on a 220-channel Maxwell 6 chip:
	  • GPS: Simultaneous L1 C/A, L2E, L2C, L5
	  • GLONASS: Simultaneous L1 C/A, L1 P, L2 C/A (GLONASS M Only), L2 P
	  • SBAS: Simultaneous L1 C/A, L5
	  • GALILEO: Simultaneous L1 BOC, E5A, E5B, E5AltBOC
	  • BeiDou: Simultaneous B1, B2
	  • QZSS: Simultaneous L1 C/A, L1 SAIF, L2C, L5
	  • L-Band OmniSTAR VBS, HP, and XP
	• Vector antenna based on a second 220-channel Maxwell 6 chip:
	  • GPS: Simultaneous L1 C/A, L2E, L2C
	  • GLONASS: Simultaneous L1 C/A, L1 P, L2 C/A, L2 P
	  • BeiDou: Simultaneous B1
	• Advanced Trimble Maxwell 6 Custom Survey GNSS Technology
	• High precision multiple correlator for GNSS pseudorange measurements
	• Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
	• Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
	• Signal-to-Noise ratios reported in dB-Hz
	• Proven Trimble low elevation tracking technology

Code differential GPS positioning accuracy[1]	0.25 m + 1 ppm Horizontal 0.50 m + 1 ppm Vertical
SBAS accuracy[2]	<5 m 3DRMS
RTK positioning accuracy (<30 km)	Horizontal: ±(8 mm + 1 ppm) RMS Vertical: ±(15 mm + 1 ppm) RMS Heading: 2 m baseline <0.09°; 10 m baseline <0.05°
Initialization time	Typically, less than 10 seconds

Physical specifications

Feature	Specification
Dimensions (L x W x H)	100 mm x 84.9 mm x 11.6 mm
Vibration	MIL810F, tailored Random 6.2 gRMS operating Random 8 gRMS survival
Mechanical shock	MIL810D ±40 g operating ±75 g survival
I/O connector	40-pin header (Samtec TMM-120-03-L-D) (Rated for 1000 cycles)
Antenna connector	2 x MMCX receptacle (Huber-Suhner 82MMCX-50-0-1/111) (Rated for 500 cycles); mating connectors are MMCX plug (Suhner 11MMCX-50-2-1C) or right-angle plug (Suhner 16MMCX-50-2-1C, or 16MMCX-50-2-10)

Electrical specifications

Feature	Specification
Voltage	3.3 V DC +5%/-3%
Power consumption	Typically, 2.1 W (L1/L2 GPS) Typically, 2.2 W (L1/L2 GPS and G1/G2 GLONASS) Typically, 3.1 W (L1/L2/L5 GPS, G1/G2 GLONASS, B1/B2 BeiDou, L1/E5 Galileo) Typically, 3.4 W (L1/L2/L5 GPS, G1/G2 GLONASS, B1/B2 BeiDou, L1/E5 Galileo, OmniSTAR/SPOT) ***Note*** *– These values were characterized using v4.84 firmware.*
Minimum required LNA gain	32.5 dB ***Note*** *– This receiver is designed to operate with the Zephyr Model 2 antenna which has a gain of 50 dB. Higher-gain antennas have not been tested.*

Environmental specifications

Feature	Specification
Temperature	Operating: -40°C to 75°C (-40°F to 167°F)
	Storage: -55°C to 85°C (-67°F to 185°F)
Vibration	MIL810F, tailored Random 6.2 gRMS operating Random 8 gRMS survival
Mechanical shock	MIL810D +/- 40 g operating +/- 75 g survival
Operating humidity	5% to 95% R.H. non-condensing, at +60°C (140°F)

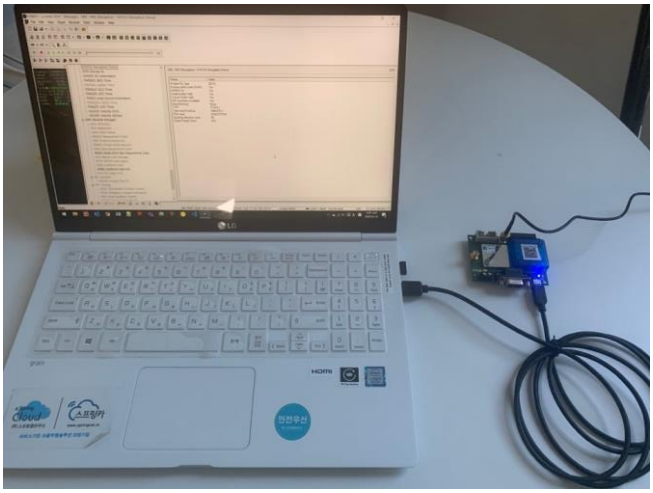
Communication specifications

Feature	Specification	
Communications	1 LAN port	• Supports links to 10BaseT/100BaseT networks. • All functions are performed through a single IP address simultaneously – including web interface access and data streaming.
	4 x RS-232 ports	Baud rates up to 460,800
	1 USB 2.0 port	
Receiver position update rate	1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz and 50 Hz positioning	
Correction data input	CMR, CMR+™, sCMRx, RTCM 2.0–2.3, RTCM 3.0, 3.1	
Correction data output	CMR, CMR+, sCMRx, RTCM 2.0 DGPS (select RTCM 2.1), RTCM 2.1–2.3, RTCM 3.0	
Data outputs	1PPS, NMEA, Binary GSOF, ASCII Time Tags	

APPENDIX

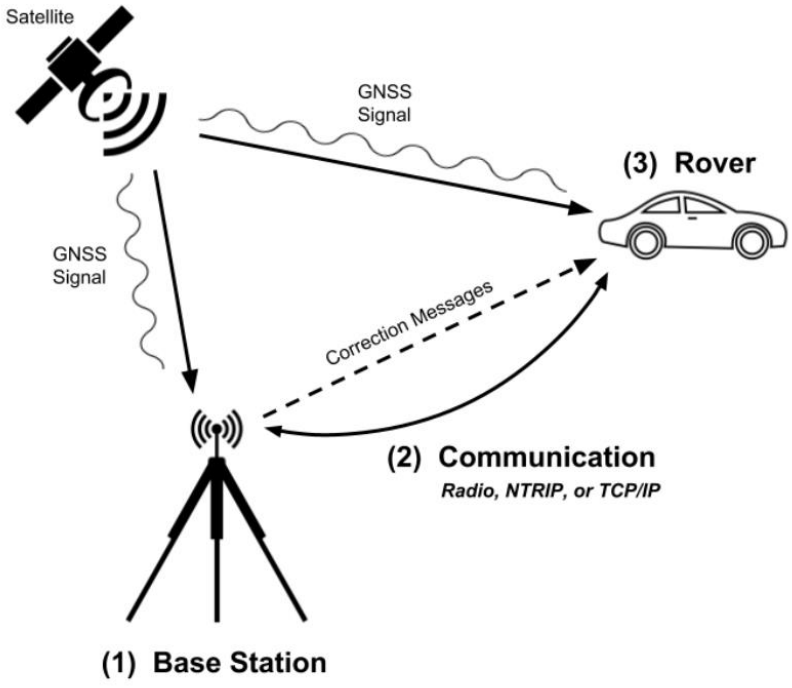
Test Environments

feature	Specification
Device	GNSS Receiver: ublox C94-M8P
PC	CPU: i5-8250U CPU@1.60GHz 1.8GHz Memory: 16.0GB
OS	Windows 10 Home x64
Software	u-center 20.01v
Internet	LTE, Wi-Fi, TCP/IP
Protocol	NMEA, RTCM3.x



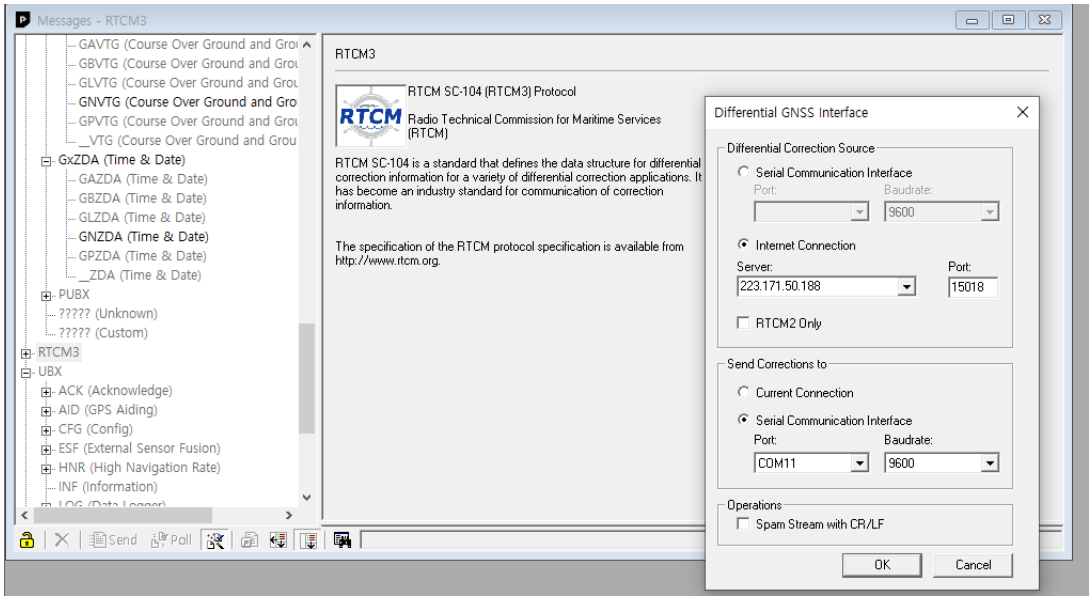
<테스트 환경 구성>

1. 위성신호보정기지국(Base station)은 고정된 위치에서 Rover station 에게 위성보정신호를 전송한다.

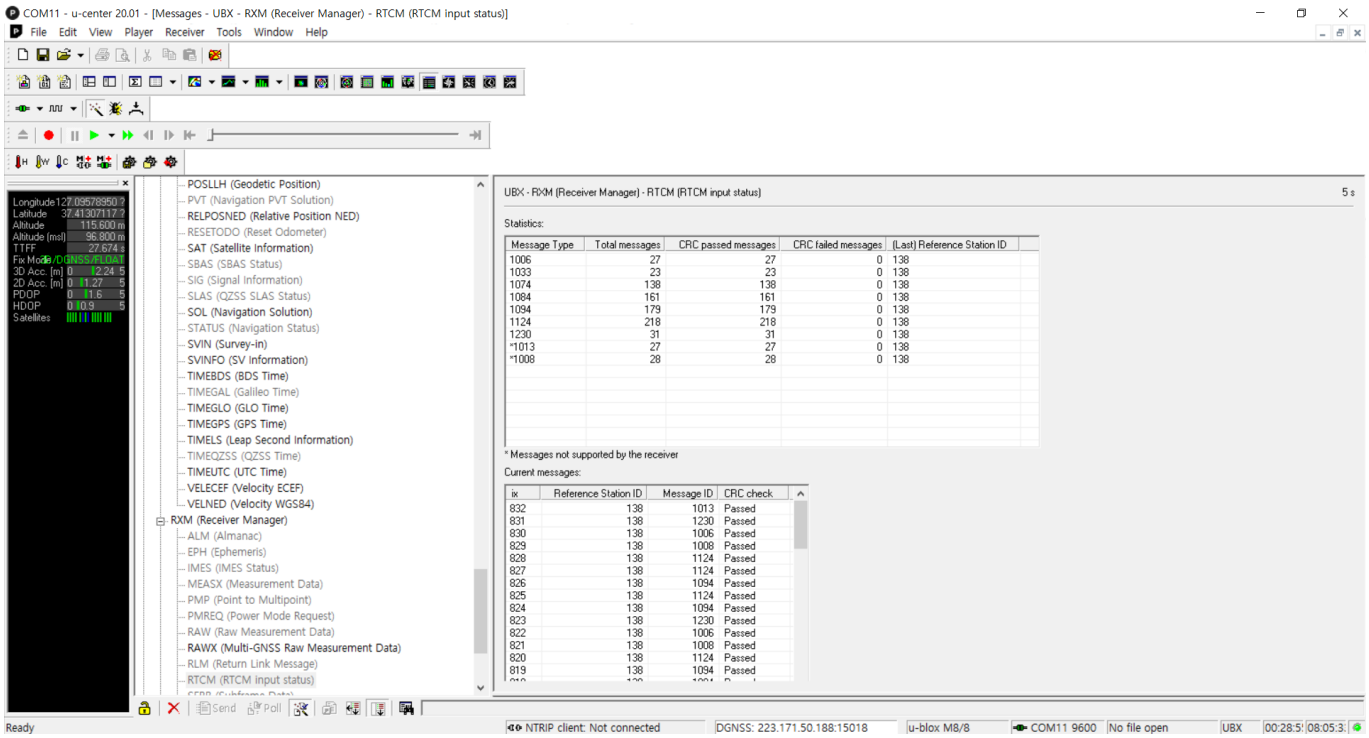


2. **Rover station 의 위성수신기는 보정된 신호를 전달받기 위하여 아래의 주소로 접속을 한다.**

- **TCP/IP 223.171.50.188:15018**



3. **접속완료 후 시계열이 확보되는 지역에서 RTCM 메시지 및 위성 수신상태를 확인한다.**



4. RTK 수신 정보를 확인한다.