

CORS System

Net20 Plus

User Manual-v1.0



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1. Technical Specification

1.1 Overview

Net20Plus is a high-precision CORS reference station receiver. LINUX system as its development platform, and it supports for secondary development. It has powerful and stable function, and can be used in many fields.

1.2 Main features

- 336 channels with Multi-constellation GNSS support.
- Superior carrier phase observations of less than 1mm accuracy
- Internal battery for more than 20 hours operation.
- 4G LTE and Bluetooth / WLAN datalink support.
- Easy configuration from webUI and remote server.
- NTRIP server/caster support.

1.3 Technical Specifications

1.3.1 Physical

- Weight : 2KG
- Dimension : 222mm*164mm*79mm

1.3.2 Environmental

- Operating temperature : -30°C-65°C
- Storage temperature : -40°C-70°C
- Humidity : 0%-100% non-condensing

1.3.3 Electrical

- Input : 9-28V
- Power : 2.8W

1.3.4 GNSS

(1)Channels : 336

(2)Tracking signals:

(3)GPS : L1 C/A, L2E, L2C, L5

(4)GLONASS : L1 C/A, L2C/A, L3 CDMA

(5)BeiDou : B1, B2, B3

(6)Galileo : E1, E5a, E5b, E5 AltBOC, E6

(7)NAVIC : L5

(8)SBAS : L1, L5

(9)QZSS : L1 C/A, L1SAIF, L1C, L2C, L5

(3) Positioning accuracy

Table 1-1 Positioning accuracy

Positioning mode	Accuracy	
	Horizontal	Vertical
static	2.5mm + 1ppm	5mm + 1ppm
RTK	8mm + 1ppm	15mm + 1ppm

(4) initialization time : < 10s

(5) initialization reliability : > 99.9%

1.3.5 Ports

- 3 RS232 serial ports(DB9 and 2 LEMO 5pin).
- 1 RJ45 Ethernet port.
- 1 power port.
- 1 USB port.
- 1 4G LTE antenna port.
- 1 UHF antenna port.(Optional)
- 1 EVENT port.
- 1 1PPS port.
- 1 SIM card slot.
- 1 GNSS antenna port.

1.3.6 Data and Storage

- Output data format: NMEA-0183, binary, RINEX, RTCM2.x, RTCM3.x
- Internal memory : 32G
- External storage : 32G

2. Hardware Structure

2.1 Receiver appearance



Figure 2-1

2.1.1 Front panel



The front panel of Net20Plus receiver includes seven buttons, four LED indicators, and one OLED display.



Figure 2-2

After switching on Net20Plus receiver, current time information and GPS status are displayed in the main interface. The default language is English, and you can press the left and right arrow keys to obtain the current IP information.

Table 2-1 Function table

Name	Function
F1	Save the current setup and return to the previous menu
F2	Enter the main menu
	Move the cursor up and down, modify parameters when entering modify items
	Move the cursor left and right
Power key	Switch on/off the receiver and confirmation key
Bluetooth indicator	It will be light blue when Net20Plus is connected via Bluetooth
Differential transmission indicator	When the differential data output, the differential indicator blinks evenly at 1-second interval
Static recording indicator	When start static recording, static recording indicator blinks evenly at 1-second interval
Power indicator	After switching on Net20Plus receiver, the power light is on

2.1.2 Back panel

Net20Plus receiver provides a variety of communication interfaces to facilitate users in different application scenarios.



Figure 2-3 Back panel

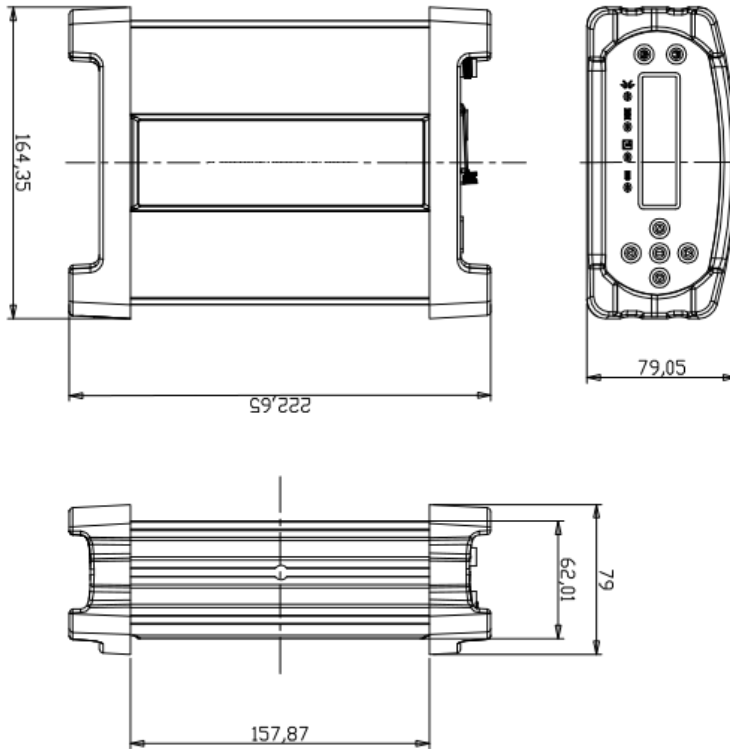
Table 2-2 Interface function table

No.	Name	Function
1	PWR	Receiver power supply interface, input voltage DC 9V-28V.
2	USB	USB interface
3	COM1	RS232 serial port
4	COM2	RS232 serial port (Optional RS485 serial port)
5	COM3	DB9 serial port
6	LTE	GPRS antenna interface
7	1PPS	1 Pulse Per Second output
8	EVENT	EVENT input
9	SIM	Standard size SIM card interface
10	RJ45	Wired Ethernet port
11	GNSS	GNSS External receiver antenna connector
12	UHF	UHF External receiver antenna connector

Note:

The UHF interface is optional.

2.2 Structural drawings / mounting dimensions



(Dimensions in mm)

Figure 2-4

3. WEB UI

There are two ways to login into the WEB interface, which are Ethernet port login and WIFI login. The WEB interface content of the two login modes is same.

(1) Ethernet port login: Connect the RJ45 network port with the computer host and enter the IP address in the browser. Enter user name and password in the pop-up dialog box; the default username is *admin* and the default password is *password*.

(2) WIFI login: when Net20Plus WIFI hotspot is enable, the user can log in into the WEB interface by connecting to its WIFI network. The hotspot name is the serial number of the receiver. Enter the IP address: 192.168.10.1, a window will pop up, the default username is *admin* and the default password is *password*.

3.1 Summary

After a successful authentication to the WEB interface of Net20Plus, the main page contents: Reference information, device version, system version, network parameters, memory status and so on. It is shown as below:

NET20 PLUS Reference Station	
Summary	
System Information	Station Name SHLN
System Information	Expire Date 2019/9/28
GPS Status	Run Time 1 day 21 hour 14 min
Satellites	
Data Transmission	
Data Recording	Device Model NET20 PLUS
Configuration	Device Serial NET20909355006
Reference Station	GNSS Model B5070
GNSS Configuration	GNSS Serial 10012003660
Tracking Satellites	
Network	Longitude 121°11' 49.41651"
Dynamic DNS	Latitude 35° 5' 3.87562"
Ntp Server	Height 62.241 m
Recording	GNSS Status Single
Port Configuration	Local Time 2019-09-27 13:03:04
Alerts	
SNMP	Internal Memory 86 688 MB / 223 868 MB (37% Free)
Firewall	Data Memory 16 955 GB / 20 542 GB (6% Free)
VPN Client	
Registration	Battery Power 100%
System Management	Power Source EXTERNAL
Configuration Set	
Language English	
Logout	

Figure 3-1

Note: The effect of different browsers display may be slightly different, recommend using Google Chrome or IE.

3.2 System Information

3.2.1 System Information

The system information screen will display the station name, device model, device serial number, system version, application version information, built-in OEM board model and network parameter information.

NET20 PLUS Reference Station	
Summary	
System Information	
System Information	Station Name SHUN
GPS Status	Expire Date 20191128
Satellites	Time Zone GMT+08:00
Data Transmission	
Data Recording	Device Model NET20 PLUS
Configuration	Device Serial NET200903608L
Reference Station	IMEI 868323029442479
GNSS Configuration	Hardware Version NSC200-V4.20-RS485
Tracking Satellites	BOOT Version 1.11
Network	OS Version 4.1.6-1.13(181031)
Dynamic DNS	APP Version 2.12(190529)
Ntrip Server	Web Version 8.12
Recording	
Port Configuration	GNSS Model BD976
Alerts	GNSS Serial 5872C03560
SNMPD	GNSS Hardware Version 4.2
Firewall	GNSS Firmware Version 5.37
VPN Client	GNSS Functionality 50Hz
Registration	
Download	DHCP Off
System Management	MAC address 50:23:88:64:DD:30
Configuration Set	IP 192.168.28.14
Language English	Mask 255.255.255.0
Logout	Gateway 192.168.28.253

Figure 3-2

3.2.2 GPS Status

The GPS Status page displays the current Net20Plus positioning, the base station coordinates and antenna type.

NET20 PLUS Reference Station																					
Summary																					
System Information																					
GPS Status	<table border="1"> <tr><td>Local Time</td><td>2016/02/15 08:18 GPS Time: 0.0</td></tr> <tr><td>Latitude</td><td>01°01'41.000"</td></tr> <tr><td>Longitude</td><td>101°59'41.000"</td></tr> <tr><td>Latitude</td><td>101°59'41.000"</td></tr> <tr><td>Height</td><td>66.210</td></tr> <tr><td>Height</td><td>66.210</td></tr> <tr><td>PCPD</td><td>1.000</td></tr> <tr><td>PCPD</td><td>1.000</td></tr> <tr><td>PCPD</td><td>1.000</td></tr> <tr><td>PCPD</td><td>1.000</td></tr> </table>	Local Time	2016/02/15 08:18 GPS Time: 0.0	Latitude	01°01'41.000"	Longitude	101°59'41.000"	Latitude	101°59'41.000"	Height	66.210	Height	66.210	PCPD	1.000	PCPD	1.000	PCPD	1.000	PCPD	1.000
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Latitude	01°01'41.000"																				
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Latitude	101°59'41.000"																				
Height	66.210																				
Height	66.210																				
PCPD	1.000																				
PCPD	1.000																				
PCPD	1.000																				
PCPD	1.000																				
Station Number	8101																				
Base Longitude	101°59'41.000"																				
Base Latitude	01°01'41.000"																				
Base Height	30.000 m																				
Antenna																					
Antenna Type	J341																				
Antenna Height	1.000																				
Management Mode	Reference Point Center																				

Figure 3-3

3.2.3 Satellites

This page shows the current satellite signal-to-noise ratio, elevation mask angle, azimuth and other information. The information of GPS, BEIDOU, GLONASS and GALILEO are displayed separately.

NET20 PLUS Reference Station																																																																																																																																																																																														
Summary																																																																																																																																																																																														
System Information																																																																																																																																																																																														
GPS Status	<p>☉ Satellites Table ☉ Satellites Skyplot</p> <table border="1"> <thead> <tr> <th>Type</th> <th>SV</th> <th>Elev[Deg]</th> <th>Azimuth[Deg]</th> <th>L1BI1R1[dBHz]</th> <th>L2BI2E5A[dBHz]</th> <th>L5BI5E5B[dBHz]</th> </tr> </thead> <tbody> <tr><td>GPS</td><td>15</td><td>30.14</td><td>219.20</td><td>43.0</td><td>41.0</td><td>-</td></tr> <tr><td>GPS</td><td>5</td><td>60.69</td><td>354.30</td><td>45.1</td><td>44.6</td><td>-</td></tr> <tr><td>GPS</td><td>2</td><td>68.97</td><td>98.53</td><td>42.2</td><td>32.1</td><td>-</td></tr> <tr><td>GPS</td><td>13</td><td>63.95</td><td>184.24</td><td>44.9</td><td>32.7</td><td>-</td></tr> <tr><td>GPS</td><td>7</td><td>11.48</td><td>65.34</td><td>38.8</td><td>36.3</td><td>-</td></tr> <tr><td>GPS</td><td>6</td><td>21.87</td><td>119.66</td><td>37.9</td><td>41.6</td><td>-</td></tr> <tr><td>GPS</td><td>30</td><td>21.66</td><td>86.62</td><td>37.2</td><td>40.9</td><td>-</td></tr> <tr><td>GPS</td><td>29</td><td>36.17</td><td>302.91</td><td>44.1</td><td>40.3</td><td>-</td></tr> <tr><td>GLONASS</td><td>22</td><td>16.68</td><td>133.66</td><td>0</td><td>0</td><td>-</td></tr> <tr><td>GLONASS</td><td>1</td><td>62.64</td><td>317.46</td><td>0</td><td>0</td><td>-</td></tr> <tr><td>GLONASS</td><td>23</td><td>76.74</td><td>164.71</td><td>0</td><td>0</td><td>-</td></tr> <tr><td>GLONASS</td><td>7</td><td>20.65</td><td>243.88</td><td>0</td><td>0</td><td>-</td></tr> <tr><td>BDS</td><td>16</td><td>56.96</td><td>211.94</td><td>43.0</td><td>42.8</td><td>-</td></tr> <tr><td>BDS</td><td>8</td><td>74.24</td><td>67.16</td><td>43.1</td><td>43.5</td><td>-</td></tr> <tr><td>BDS</td><td>29</td><td>56.25</td><td>409.14</td><td>46.4</td><td>-</td><td>-</td></tr> <tr><td>BDS</td><td>30</td><td>50.42</td><td>178.30</td><td>45.3</td><td>-</td><td>-</td></tr> <tr><td>BDS</td><td>13</td><td>66.48</td><td>339.43</td><td>44.1</td><td>42.6</td><td>-</td></tr> <tr><td>BDS</td><td>20</td><td>66.78</td><td>322.76</td><td>46.5</td><td>-</td><td>-</td></tr> <tr><td>BDS</td><td>6</td><td>65.65</td><td>206.64</td><td>41.8</td><td>43.4</td><td>-</td></tr> <tr><td>BDS</td><td>9</td><td>39.34</td><td>211.65</td><td>39.6</td><td>42.2</td><td>-</td></tr> <tr><td>BDS</td><td>19</td><td>28.48</td><td>258.98</td><td>41.8</td><td>-</td><td>-</td></tr> <tr><td>BDS</td><td>4</td><td>34.60</td><td>123.25</td><td>36.2</td><td>40.5</td><td>-</td></tr> <tr><td>BDS</td><td>3</td><td>52.54</td><td>261.66</td><td>39.0</td><td>41.2</td><td>-</td></tr> <tr><td>BDS</td><td>2</td><td>36.77</td><td>237.37</td><td>36.8</td><td>41.8</td><td>-</td></tr> <tr><td>BDS</td><td>1</td><td>47.93</td><td>147.63</td><td>38.1</td><td>43.4</td><td>-</td></tr> <tr><td>Galileo</td><td>36</td><td>30.33</td><td>326.12</td><td>41.3</td><td>44.2</td><td>44.2</td></tr> </tbody> </table>	Type	SV	Elev[Deg]	Azimuth[Deg]	L1BI1R1[dBHz]	L2BI2E5A[dBHz]	L5BI5E5B[dBHz]	GPS	15	30.14	219.20	43.0	41.0	-	GPS	5	60.69	354.30	45.1	44.6	-	GPS	2	68.97	98.53	42.2	32.1	-	GPS	13	63.95	184.24	44.9	32.7	-	GPS	7	11.48	65.34	38.8	36.3	-	GPS	6	21.87	119.66	37.9	41.6	-	GPS	30	21.66	86.62	37.2	40.9	-	GPS	29	36.17	302.91	44.1	40.3	-	GLONASS	22	16.68	133.66	0	0	-	GLONASS	1	62.64	317.46	0	0	-	GLONASS	23	76.74	164.71	0	0	-	GLONASS	7	20.65	243.88	0	0	-	BDS	16	56.96	211.94	43.0	42.8	-	BDS	8	74.24	67.16	43.1	43.5	-	BDS	29	56.25	409.14	46.4	-	-	BDS	30	50.42	178.30	45.3	-	-	BDS	13	66.48	339.43	44.1	42.6	-	BDS	20	66.78	322.76	46.5	-	-	BDS	6	65.65	206.64	41.8	43.4	-	BDS	9	39.34	211.65	39.6	42.2	-	BDS	19	28.48	258.98	41.8	-	-	BDS	4	34.60	123.25	36.2	40.5	-	BDS	3	52.54	261.66	39.0	41.2	-	BDS	2	36.77	237.37	36.8	41.8	-	BDS	1	47.93	147.63	38.1	43.4	-	Galileo	36	30.33	326.12	41.3	44.2	44.2
Type	SV	Elev[Deg]	Azimuth[Deg]	L1BI1R1[dBHz]	L2BI2E5A[dBHz]	L5BI5E5B[dBHz]																																																																																																																																																																																								
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Figure 3-4

3.2.4 Data Transmission

After setting up the data transmission, the user can see the current data transfer status on the page as shown in figure 3-5. Click [Edit] to directly jump to [Ntrip Server].

NET20 PLUS Reference Station							
Summary							
System Information							
GPS Status							
Satellites							
Data Transmission							
Data Recording							
Configuration							
Reference Station							
GNSS Configuration							
Tracking Satellites							
Network							
Dynamic DNS							
Ntrip Server							
Recording							
Port Configuration							
Alerts							

Name	Castler Address	Mountpoint	Data Type	Status	Start Time	Data Size	Operation
RTCM32	127.0.0.1:81	SH_RTCM32	RTCM32	transmitting	2019-09-26 10:24:20	40.440 MB	Edit Start
RTCM32_10s	127.0.0.1:81	SH_RTCM32_10s	RTCM32_10	transmitting	2019-09-26 10:24:26	40.439 MB	Edit Start
Tap	115.134.228.95:6660	sSurvey Test	RTCM32	transmitting	2019-09-26 13:29:37	43.707 MB	Edit Start
sCMRx	127.0.0.1:81	SH_sCMRx	SOMRX	transmitting	2019-09-26 10:24:27	26.597 MB	Edit Start

Figure 3-5

3.2.5 Data Recording

In this page, the user can see the specific data recording information as shown in figure 3-6. Click [Edit], the user could modify the parameters like path type, file name, interval, duration time, etc. as shown in figure 3-7.

Schedule Name	Interval	Path	Status	Start Time	Duration Time	File Size	Operation
UNSH	1S	20190927/2700400.dat	recording	2019-09-27 12:00:01	120 min	7.053 MB	Edit Start

[New Session](#)

Figure 3-6

Compress(Globally) : Off

Recording - UNSH

Schedule Name	UNSH
Path Type	YYYYMMDD
File Name	DDYHMMSS.dat
Interval	1HZ
Duration Time	2 hours
Path	Stop When Full 30480 MB
Auto	<input checked="" type="checkbox"/> Enable <input type="checkbox"/> Disable
Integral Point Record	<input checked="" type="checkbox"/> Enable <input type="checkbox"/> Disable
File Push	<input type="checkbox"/> Enable <input checked="" type="checkbox"/> Disable
Push Parameters	
Protocol	<input checked="" type="checkbox"/> FTP <input type="checkbox"/> GEO <input type="checkbox"/> RADIO
FTP Server Address	
FTP Server Port	
FTP User	admin
FTP Password	*****
Remote Directory	
Convert	<input type="checkbox"/> Enable <input checked="" type="checkbox"/> Disable

Figure 3-7

3.3 Configuration

3.3.1 Reference Station

On this page the user mainly can set the reference station, antenna, coordinate system and station coordinates, as shown in figure 3-8.

Summary	
System Information	
System Information	
GPS Status	
Satellites	
Data Transmission	
Data Recording	
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Ntrip Server	
Recording	
Port Configuration	
Alerts	
SNMPD	
Firewall	
VPN Client	
Registration	
Download	
System Management	
Configuration Set	

Observer Name		
Agency Name		
Station Name	SHJN	
Marker Number	0 ▼	
Marker Type	GEODETTIC ▼	
Receiver Number	0 ▼	
Country Code	CHN - China ▼	
Site ID	1100	
Time Zone	GMT+08:00 ▼	
HTTP Server Port	80	

Antenna Type	Custom ▼	UA63	Download	Choose File	No file chosen
Antenna Serial					
R(mm)	0				
H(mm)	0				
HL1(mm)	0				
HL2(mm)	0				

Figure 3-8

Reference station coordinates: If you do not need known coordinates to start the reference station, then click on "Load Current Position" to get the reference station coordinates approximately. However, if you need known coordinates, please input them according to the appropriate format.

The web access port is 80. After setting mapping in the router device, then you can access the Net20Plus by Internet, enter the ip address and the port, e.g. 113.109.179.180:80

3.3.2 GNSS configuration

This menu is mainly for the satellite systems and the cutoff angle settings, as shown in figure 3-10.

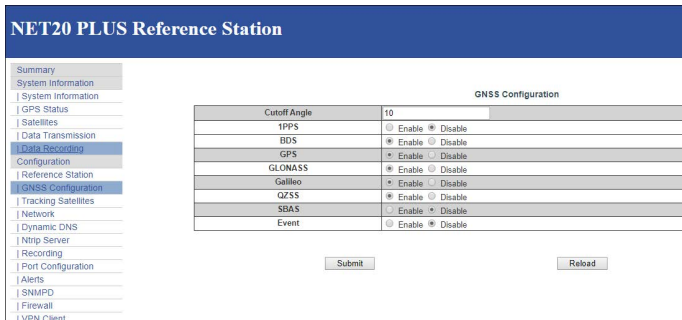


Figure 3-10

3.3.3 Tracking satellites

In this page, the user can select the satellites they want to track, as shown in figure 3-11.

NET20 PLUS Reference Station								
Summary								
System Information								
System Information								
GPS Status								
Satellites	Tracking Satellites							
Data Transmission	GPS	Don't track	Glonass	Don't track	BeiDou	Don't track	Galileo	Don't track
Data Recording	G1 <input type="checkbox"/>		R1 <input type="checkbox"/>		C1 <input type="checkbox"/>		E1 <input type="checkbox"/>	
Configuration	G2 <input type="checkbox"/>		R2 <input type="checkbox"/>		C2 <input type="checkbox"/>		E2 <input type="checkbox"/>	
Reference Station	G3 <input type="checkbox"/>		R3 <input type="checkbox"/>		C3 <input type="checkbox"/>		E3 <input type="checkbox"/>	
GNSS Configuration	G4 <input type="checkbox"/>		R4 <input type="checkbox"/>		C4 <input type="checkbox"/>		E4 <input type="checkbox"/>	
Tracking Satellites	G5 <input type="checkbox"/>		R5 <input type="checkbox"/>		C5 <input type="checkbox"/>		E5 <input type="checkbox"/>	
Network	G6 <input type="checkbox"/>		R6 <input type="checkbox"/>		C6 <input type="checkbox"/>		E6 <input type="checkbox"/>	
Dynamic DNS	G7 <input type="checkbox"/>		R7 <input type="checkbox"/>		C7 <input type="checkbox"/>		E7 <input type="checkbox"/>	
Ntpp Server	G8 <input type="checkbox"/>		R8 <input type="checkbox"/>		C8 <input type="checkbox"/>		E8 <input type="checkbox"/>	
Recording	G9 <input type="checkbox"/>		R9 <input type="checkbox"/>		C9 <input type="checkbox"/>		E9 <input type="checkbox"/>	
Port Configuration	G10 <input type="checkbox"/>		R10 <input type="checkbox"/>		C10 <input type="checkbox"/>		E10 <input type="checkbox"/>	
Alerts	G11 <input type="checkbox"/>		R11 <input type="checkbox"/>		C11 <input type="checkbox"/>		E11 <input type="checkbox"/>	
SNMPD	G12 <input type="checkbox"/>		R12 <input type="checkbox"/>		C12 <input type="checkbox"/>		E12 <input type="checkbox"/>	
Firewall	G13 <input type="checkbox"/>		R13 <input type="checkbox"/>		C13 <input type="checkbox"/>		E13 <input type="checkbox"/>	
VPN Client								
Registration								
Download								

Figure 3-11

3.3.4 Network

From Network option, the user can set the device network and FTP server settings as shown in figure 3-12.

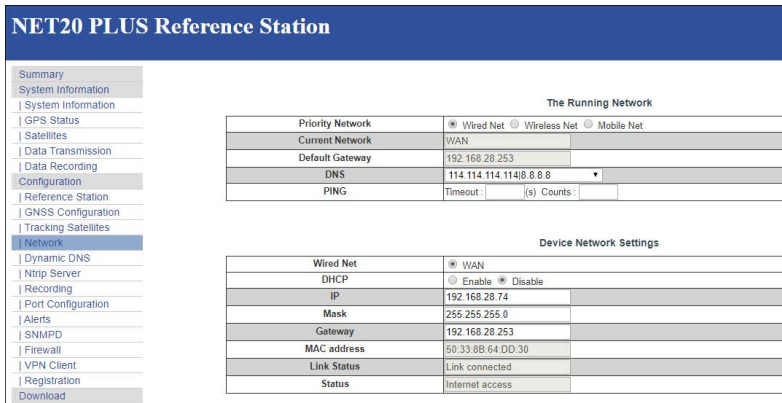


Figure 3-12

DHCP : If the mode DHCP is enable, the Net20Plus receiver will auto get an IP address, otherwise it uses the static IP.

WIFI hotspot: If WIFI hotspot option is enable, then you can use other devices equipped with WIFI to search and connect to the Net20Plus receiver. The hotspot is named by the serial number of the receiver. You don't need to input a password. Access Net20Plus by IP address 192.168.10.1. The hotspot only play the role of control and can't access to internet.

WIFI Client: When selecting WIFI client, in SSID box input a name of WIFI hotspot can be used for the search, and in the Password box input the password for connecting to WIFI hotspot, then submit. After connecting to the connection WIFI, the password can be seen in system terminal or panel interface (the displayed place will be different in different versions).

Mobile network: enable Mobile Net to use the SIM card into the Net20Plus, it supports 4G network. Users can set the user name and password if required.

FTP download: You can set the parameters of the FTP server. If anonymous access is turned on, it does not require a user name and password to connect to the Net20Plus. If anonymous access is turned off, enter the user name and password.

After using the FTP tool to connect to the Net20Plus, the data appears as follows:

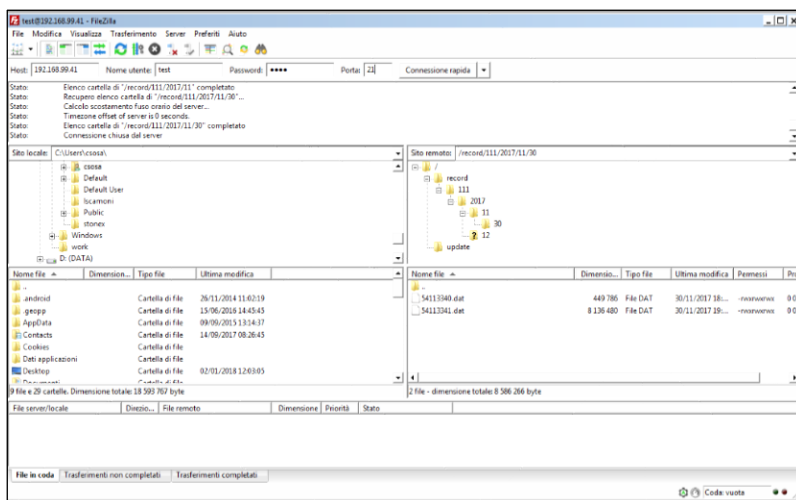
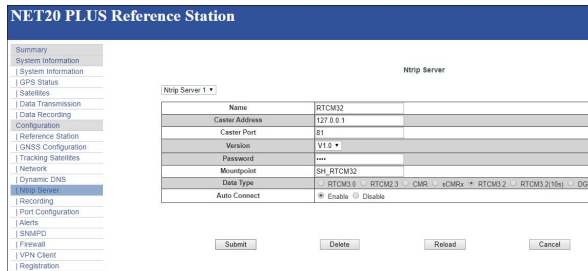


Figure 3-13

3.3.5 Ntrip Server

In this page, the user can set the NTRIP connection parameters of the reference station:



NET20 PLUS Reference Station	
Ntrip Server	
Ntrip Server 1	
Name	RTCM32
Center Address	127.0.0.1
Center Port	84
Version	V1.0
Password	----
Mountpoint	SH_RTCM32
Data Type	<input type="radio"/> RTCM3.0 <input type="radio"/> RTCM3.3 <input type="radio"/> CMR <input type="radio"/> aCMRx <input type="radio"/> RTCM3.2 <input type="radio"/> RTCM3.2(10s) <input type="radio"/> DGPS
Auto Connect	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
<input type="button" value="Submit"/> <input type="button" value="Delete"/> <input type="button" value="Reload"/> <input type="button" value="Cancel"/>	

Figure 3-14

Remarks:

- The password in this page must match the password of the server NTRIP if it is required. If the password is not required by the server you can enter any value.
- When the [Auto Connect] option is chosen, after the network is disconnected, the data transmission will be automatically connected. If the option is disable will be necessary to start the connection manually from the Data Transmission menu by clicking on start.
- Before setting the parameters, check in the page Reference Station if the coordinates are correct. Wrong coordinates cannot allow to transmit data to the server.

Click "Submit" to start the data transmission. In the Data Transmission page you can see the data transfer status displayed as "transmitting". The differential transmission indicator in the front panel of the receiver starts to blink.

3.3.6 Recording

In this page, the user can set the data recording parameters:

The screenshot shows the 'NET20 PLUS Reference Station' configuration interface. The left sidebar contains a navigation menu with options like Summary, System Information, CPSE Status, Easites, Data Transmission, Data Recording, Configuration, Reference Station, UNISB Configuration, Tracking Database, Networks, Dynamic DNS, FTP Server, and Registration. The 'Registration' option is currently selected. The main content area is titled 'Recording - UNISB' and contains a table of configuration parameters.

Recording - UNISB	
Schedule Name	UNISB
Path Type	YYYYMMDD
File Name	DDMMYY.dat
Interval	152
Duration Time	2 hours
Start	Specify File
Auto	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Integral Point Record	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
File Push	<input type="checkbox"/> Enable <input type="checkbox"/> Disable
Push Parameters	
Protocol	<input checked="" type="checkbox"/> FTP <input type="checkbox"/> GEO <input type="checkbox"/> BICO
FTP Server Address	
FTP Server Port	
FTP User	admin
FTP Password	=====
Remote Directory	
<input type="button" value="Cancel"/> <input type="button" value="Enable"/> <input type="button" value="Disable"/>	

Figure 3-15

File name: The static date can be recorded in 4 ways.

Table 3-1 The rules of Static record file name

File name	Annotation
YYYYMMDDhhmmss.dat	Date and when, minute and second
YYYYMMDDhhmm.dat	Date and when, minute
DOYhhmm.dat	Day of year, hour and minute
YYYYDOY?.dat	Year, day of year, period of time
ssssddf.yyt	Station name, day of year, period of time
Rinex302.dat	Named by rinex3.02 standard
Custom	Manually input the file name by the way of name + .dat

Duration time: After setting the record length, the file will be recorded depending on the setting time, and it will be stopped at the end of the record length. If you enable the auto record option, the Net20Plus will start a new file automatically.

FTP push : First you should set the FTP server parameters. When it records the data in the internal memory, Net20Plus will also send the data to FTP server automatically.

3.3.7 Port Configuration

Port setting includes Bluetooth port, COM1 port and Socket settings. They can support the function as follow:

- CMD(INPUT/OUTPUT) : Net20Plus commands
- NMEA(OUTPUT) : Output Specified NMEA sentences
- RTK(INPUT): Differential Input
- RTK(OUTPUT): Differential Output
- RAW(OUTPUT) : Raw data output
- BINEX(OUTPUT) Output Specified BINEX sentences

COM1 can be used also to establish the communication with OEM.

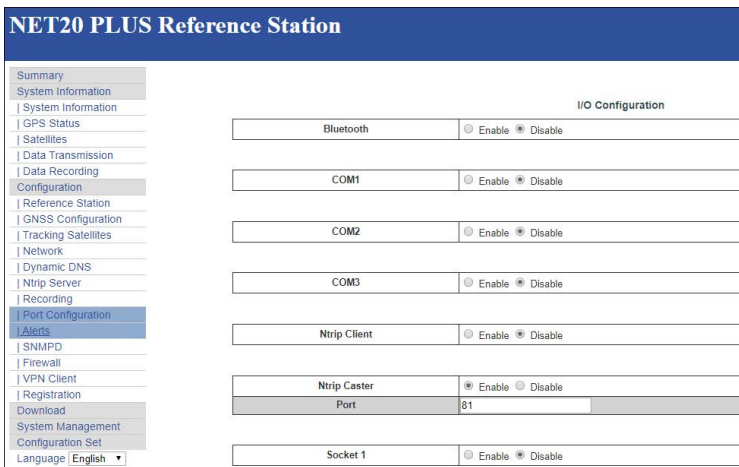


Figure 3-16

3.3.7.1 Bluetooth

After opening the Bluetooth and choosing the output/input type, then click "submit", you can use Bluetooth driver to scan the Net20Plus. The Bluetooth of Net20Plus is named by driver serial. Now we use the PDA to access the Net20Plus by Bluetooth. The page of PDA will be shown as follow:

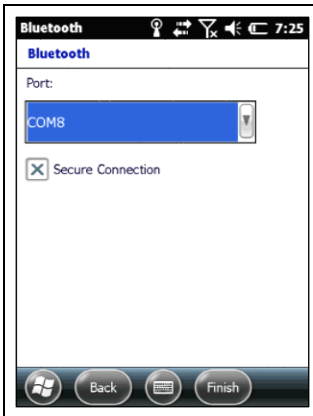


Figure 3-17

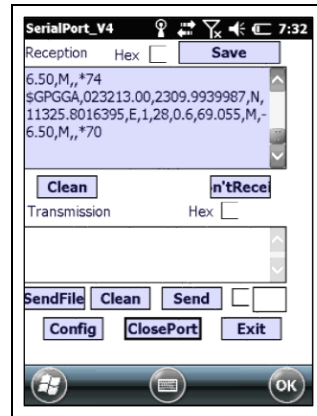


Figure 3-18

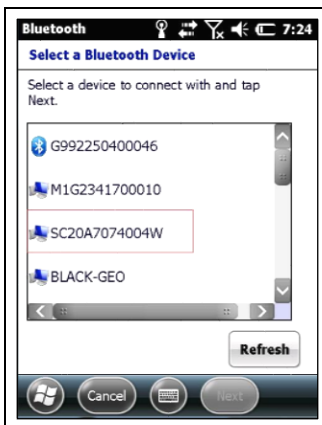


Figure 3-19

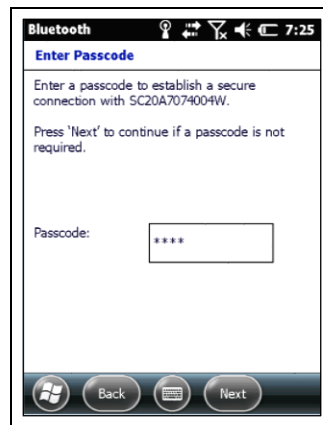


Figure 3-20

3.3.7.2 COM1

Note:

a: When data transmission on com1 is enabled, use the standard seven-pin cable to connect seven-pin interface in the back panel.

b: The baud rate of com1 must be consistent with the baud of receiving device.

Figure 3-21 and Figure 3-22 are the process of the COM1 port output RTCM3.2.

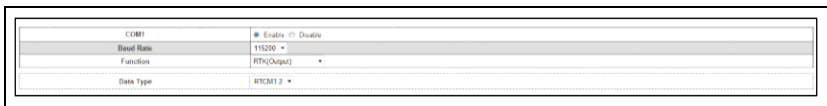


Figure 3-21

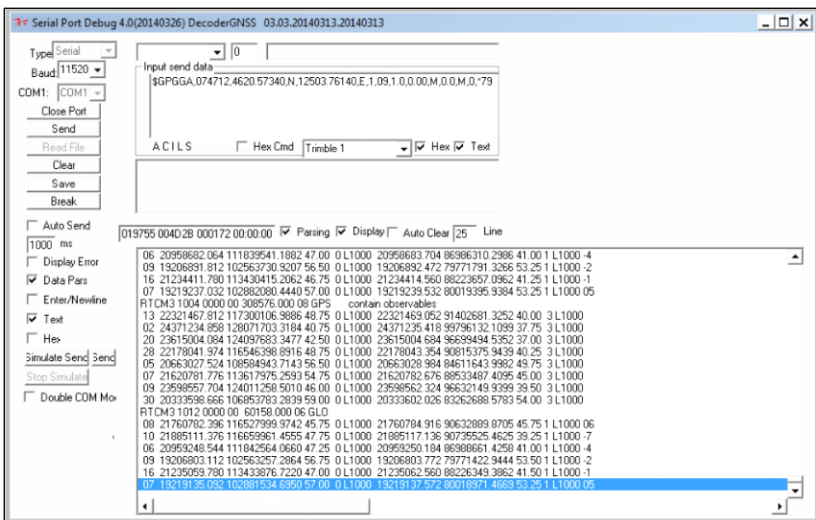


Figure 3-22

3.3.7.3 SOCKET

Figure 3-25 and Figure 3-26 are the process of output RAW data via socket.

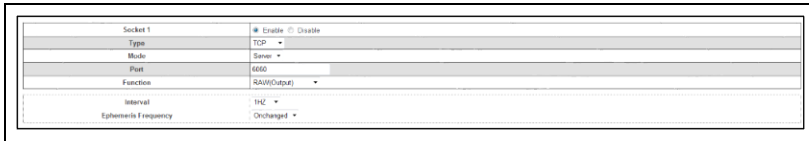


Figure 3-25

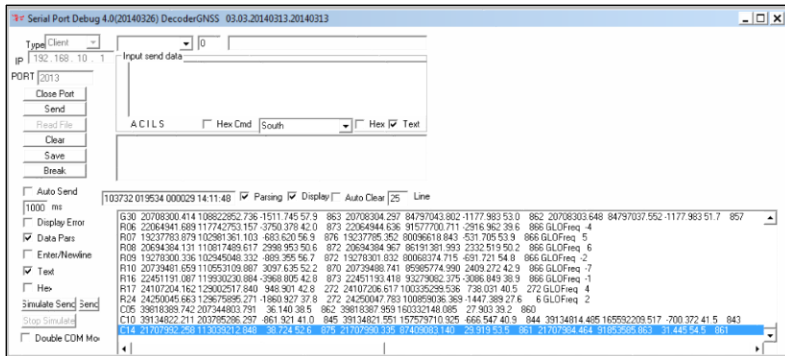


Figure 3-26

3.3.8 Alerts

When Net20Plus system or program exception occurs, Net20Plus will use e-mail or cell phone text messages to notify manager in time for maintenance.

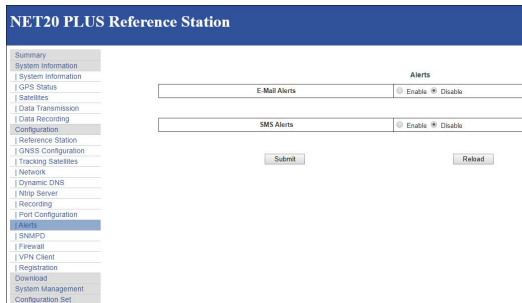


Figure 3-27

3.3.9 Registration

When Net20Plus receiver expires, you need to register it. Enter the registration code and click Submit, then instrument registration will be completed.

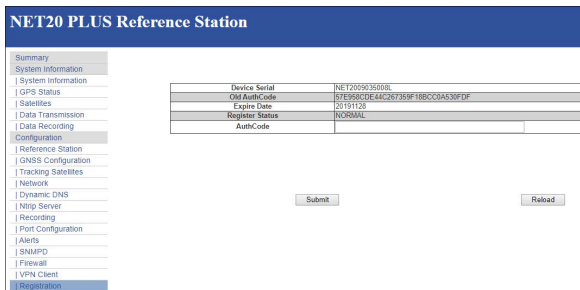


Figure 3-28

3.4 Download

Download data stored in the Net20Plus receiver through the network connection;

Alternatively, you can connect to Net20Plus receiver for copying data via USB cable;

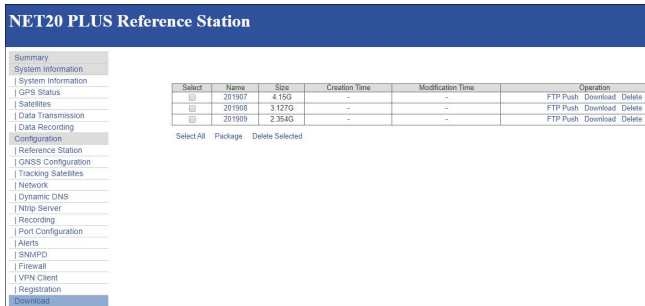


Figure 3-29

3.5 System Management

The users can upgrade the firmware, view logs, enable or disable the login, and format internal disk.

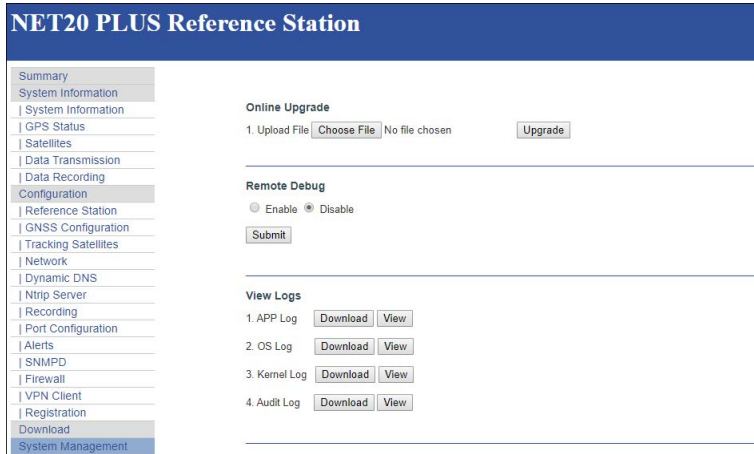


Figure 3-30

Note:

1. Log view part are abnormal operation of storage systems and procedures of a record;
2. When setting the security login, the admin account is the administrator account and the guest account can only view the information.

3.6 Help

Here provide operating guidelines for Net20Plus introductory guiding.

4. Operation

4.1 Power on

Press the red power button on the panel, and until the initialization is completed, you can see the main menu display on OLED screen as shown in figure 4-1.

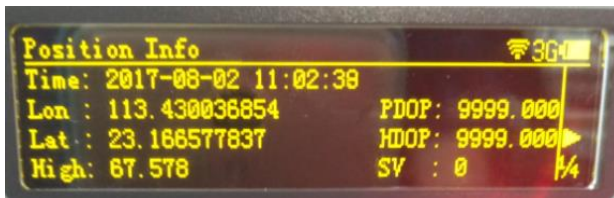


Figure 4-1

Press left or right soft key to view the current IP information of Ethernet, WIFI, and GPRS.



Figure 4-2

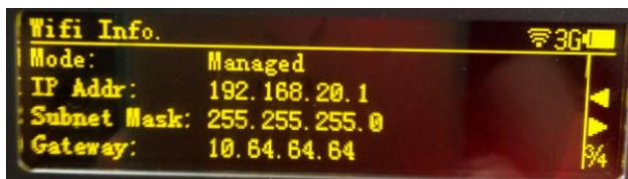


Figure 4-3

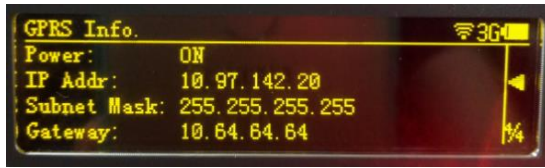


Figure 4-4

4.2 Quick setting

You can quickly set the receiver by the panel key. It includes six parts: device info, start record, transmit data, network settings, antenna settings and other settings.

Start Record: In the main interface, lightly press F2 key you can see the options shown in figure 4-5.

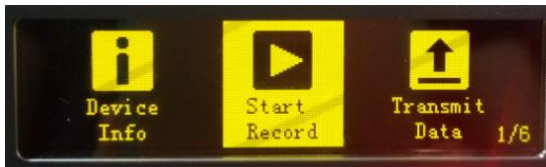


Figure 4-5

Lightly press power key to confirm, then enter into "Start Record", you can see the page shown in figure 4-6.

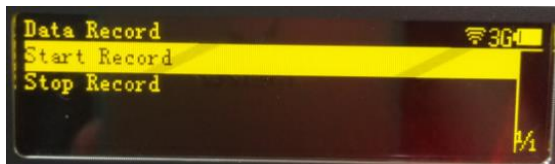


Figure 4-6

When the static is stopped, the cursor stops at the row of "Start Record";

Transmit Data:

When you transmit data by the panel, first you need to set the transmission parameters in the WEB UI page, then you can operate the panel. There are not transmission parameters settings on the setup panel.



Figure 4-7

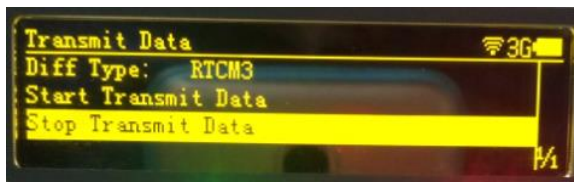


Figure 4-8

You can quickly set differential type, start and stop transmit data.

Network Settings:

Net20Plus network settings can be set to automatically obtain the IP or choose a static IP mode;

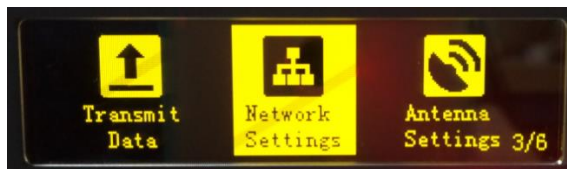


Figure 4-9

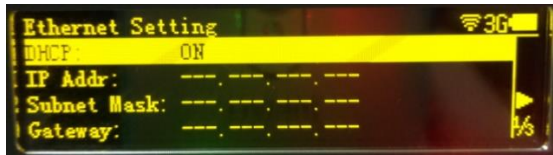


Figure 4-10



Figure 4-11

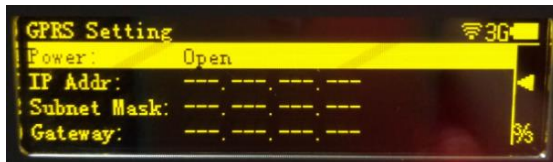


Figure 4-12

Antenna settings:

Not supported at the moment.



Figure 4-13



Figure 4-14

Other settings:

Other settings could set the OLED language display, OLED brightness, OLED turned off interval.



Figure 4-15



Figure 4-16

Device information:

In this page, you can get the information of device model, device serial, hardware version and BOOT version.



Figure 4-17



Figure 4-18

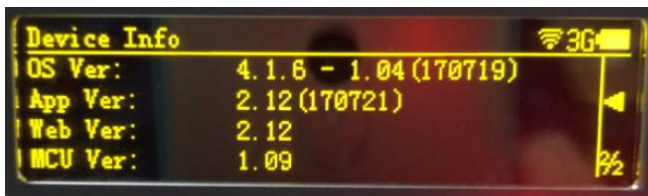












Figure 4-19

5. Accessories

Table 5-1 Accessories of Net20Plus

NO.	Items	Quantity	Model	Description	Picture
1	Carton Box	1	---	---	
2	Net20 Plus	1	---	---	
3	Charger	1	PSAA30R-150	2-pin Lemo power cable Input: 100~240V~0.8A 50-60Hz Output: 15v, 2A	
4	Charger Plug	1	---	---	
5	5-Pin Cable	1	TC-183	For serial data output	
6	7-Pin Cable	1	TC.GK428.ABL	For internal storage access only	
7	Serial Cable	1	---	Female to female, cross serial cable	
8	Ethernet Cable	1	---	RJ45 Ethernet cable	
9	4G Network Antenna	1	---	External 4G network antenna	
Optional					
10	Antenna	1	EA91	Choke-ring Antenna, Multi-frequency	
11	Cable	1	TNC-TNC	The length is 30 meters, customizable	---
12	Software	1	NTRIPcaster	Single base station	---
13	Software	1	GNSS.Net	VRS network	---