

CORS System

Net20 Plus

User Manual-v1.0



Contents

Statement.....	1
1. Technical Specification	4
1.1 Overview	4
1.2 Main features.....	4
1.3 Technical Specifications	4
1.3.1 Physical	4
1.3.2 Environmental.....	4
1.3.3 Electrical	4
1.3.4 GNSS.....	5
1.3.5 Ports.....	6
1.3.6 Data and Storage	6
2. Hardware Structure	7
2.1 Receiver appearance	7
2.1.1 Front panel.....	7
2.1.2 Back panel.....	9
2.2 Structural drawings / mounting dimensions.....	10
3. WEB UI.....	11
3.1 Summary	12
3.2 System Information.....	13
3.2.1 System Information.....	13
3.2.2 GPS Status.....	14
3.2.3 Satellites	14
3.2.4 Data Transmission.....	15
3.2.5 Data Recording	16
3.3 Configuration	17
3.3.1 Reference Station	17
3.3.2 GNSS configuration.....	18
3.3.3 Tracking satellites.....	19
3.3.4 Network.....	20
3.3.5 Ntrip Server.....	22
3.3.6 Recording	23
3.3.7 Port Configuration	25
3.3.7.1 Bluetooth.....	26
3.3.7.2 COM1.....	27
3.3.7.3 SOCKET	28
3.3.8 Alerts.....	29

3.3.9 Registration.....	29
3.4 Download.....	30
3.5 System Management.....	31
3.6 Help.....	31
4. Operation	32
4.1 Power on	32
4.2 Quick setting.....	33
5. Accessories.....	38



CAUTION

Ignoring this indication and making an operation error could possibly result in personal injury or property damage.

- Do not perform disassembly which may cause fire, electric shock or burn. Only eSurvey authorized distributors can disassemble device.
- Do not cover the charger which may causes fire.
- Do not use defection power cable, socket or plug which may cause fire, electronic shock.
- Do not use wet charger which may cause fire, electronic shock.
- Do not close the instrument to burning gas or liquid
- Do not put the battery in the fire or high temperature condition which may cause explosion.
- Do not use the battery which is not specified by eSurvey.
- Do not use the power cable which is not specified by eSurvey. Fire could result.
- Do not short circuit of the battery. Fire could result.
- When this product encounters disturbance of severe Electrostatic Discharge, perhaps it will have some degradation of performance like switching on/off automatically and so on.

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.

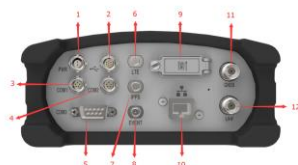


Figure 2-3 Back panel

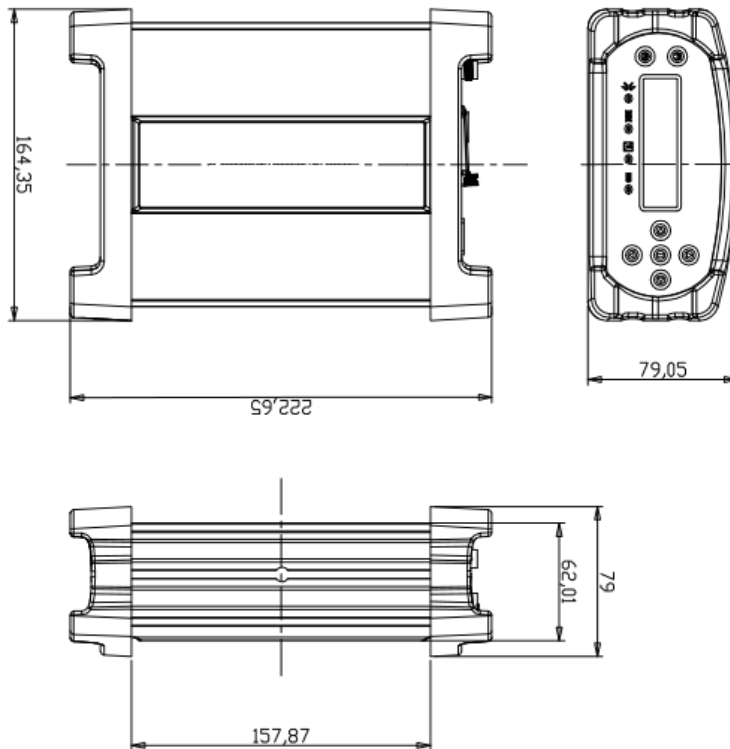
Table 2-2 Interface function table

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	SHUN
System Information	Expire Date	2019/08
GPS Status	Run Time	1 day 21 hour 14 min
Satellites		
Data Transmission		
Data Recording	Device Model	NET20 PLUS
Configuration	Device Serial	NET2000355555
Reference Station	GNSS Model	BD970
GNSS Configuration	GNSS Serial	10512003000
Tracking Satellites		
Network	Longitude	121°15' 49.41651"
Dynamic DNS	Latitude	35°5' 3.87962"
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 / 223.956 MB (28% Free)
Firewall	Data Memory	16.951 GB / 28.582 GB (66% Free)
VPN Client		
Registration	Battery Power	100%
System Management	Power Source	BATTERY
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 NET2009035008L
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 2.12
Recording	
Port Configuration	GNSS Model BD970
Alerts	GNSS Serial 1812C03560
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 98:23:88:64: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	
Satellites	
Data Transmission	
Data Recording	
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Nntp Server	
Recording	
Alerts	
Security	
Firewall	
VPN Client	
Registration	
Download	
System Management	
Configuration Set	
Language (English)	
Login	

Local Time	2016/02/15 08:18 GPS Time +08
Latitude	31°59'41.7100"
Longitude	121°5'31.9600"
Height	60.1217
Speed	0.00
PCPD	0.00
Altitude	0.00
Altitude	0.00
Station Number	8101
Base Longitude	121°51'43.8000"
Base Latitude	31°5'13.1100"
Base Height	30.7000
Antenna Type	Trimble
Antenna Height	0.00
Measurement 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	
Satellites	
Data Transmission	
Data Recording	
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Nntp Server	
Recording	
Port Configuration	
Alerts	
SNMPD	
Firewall	
VPN Client	
Registration	
Download	
System Management	
Configuration Set	
Language (English)	
Login	

Type	SV	Elev[Deg]	Azimuth[Deg]	L1(B1)C1[dBHz]	L2(B2)C2[dBHz]	L5(B5)C5[dBHz]
GPS	15	30.14	219.23	43.6	41.0	-
GPS	5	60.69	354.30	45.1	44.6	-
GPS	2	68.27	98.53	42.2	32.1	-
GPS	13	63.95	154.24	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	40.8	-
GPS	29	36.17	382.91	44.1	40.3	-
GLONASS	22	16.68	183.66	0	0	-
GLONASS	1	62.84	317.86	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	67.18	43.1	43.5	-
BDS	25	56.25	269.14	46.4	-	-
BDS	30	50.42	178.30	45.3	-	-
BDS	13	66.48	339.63	44.1	42.6	-
BDS	20	66.78	322.76	46.5	-	-
BDS	6	65.55	265.54	41.8	43.4	-
BDS	9	39.34	211.65	38.6	42.2	-
BDS	19	28.48	258.98	41.8	-	-
BDS	4	34.80	123.25	36.2	46.5	-
BDS	3	62.54	261.08	39.9	41.2	-
BDS	2	36.77	237.37	36.8	41.8	-
BDS	1	47.79	147.63	38.1	43.4	-
Galileo	36	30.33	326.12	41.3	44.2	44.2

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	Caster 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 10:24:20	40.439 MB	Edit Start
Tap	115.134.228.95:6660	eSurvey Test	RTCM32	transmitting	2019-09-26 13:29:37	43.707 MB	Edit Start
sCMRx	127.0.0.1:81	SH_sCMRx	SCMRX	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.

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									
Data Configuration									

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

NET20 PLUS Reference Station	
Summary	Compress(Globally) : ☐ Off
System Information	
GPS Status	
Satellites	
Data Transmission	
Data Recording	Recording : UNSH
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Ntrip Server	
Recording	
Port Configuration	
Alerts	
SNMP	
Firewall	
VPN Client	
Registration	
Download	
System Management	
Configuration Set	
Language : English	
Logout	

Schedule Name	UNSH
Path Type	YYYYMMDD
File Name	DDYHMMSS.dat
Interval	1Hz
Duration Time	2 hours
Post	Stop When Full 20480 MB
Auto	☒ Enable ☐ Disable
Integral Point Record	☒ Enable ☐ Disable
File Push	☐ Enable ☒ Disable
Push Parameters	
Protocol	☒ FTP ☐ GEO ☐ RADIO
FTP Server Address	
FTP Server Port	
FTP User	admin
FTP Password	*****
Remote Directory	
Convert	☐ Enable ☒ 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	
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	SHUN
Marker Number	0 ▼
Marker Type	GEOETIC ▼
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	Upload				
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.

NET20 PLUS Reference Station

- Summary
- System Information
- GPS Status
- Satellites
- Data Transmission
- Static Recording**
- Configuration
- Reference Station
- GNSS Configuration**
- Tracking Satellites
- Network
- Dynamic DNS
- NTP Server
- Recording
- Port Configuration
- Alerts
- SNMPD
- Firewall
- VPN Client

GNSS Configuration

Cutoff Angle	10
1PPS	☐ Enable ☒ Disable
BDS	☒ Enable ☐ Disable
GPS	☒ Enable ☐ Disable
GLONASS	☒ Enable ☐ Disable
Galileo	☒ Enable ☐ Disable
QZSS	☒ Enable ☐ Disable
SBAS	☐ Enable ☒ Disable
Event	☐ Enable ☒ Disable

Submit

Reload

Figure 3-10

3.3.4 Network

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

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

SNMPD

Firewall

VPN Client

Registration

Download

Priority Network

Current Network

Default Gateway

DNS

PING

☒ Wired Net
☐ Wireless Net
☐ Mobile Net

WAN

192.168.28.253

114.114.114.114/8.8.8.8

Timeout : (s) Counts :

Wired Net

DHCP

IP

Mask

Gateway

MAC address

Link Status

Status

☒ WAN
☐ Enable
☐ Disable

192.168.28.74

255.255.255.0

192.168.28.253

50.33.88.64 DD 30

Link connected

Internet access

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).

Net20Plus GNSS Receiver – User Manual 20

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:

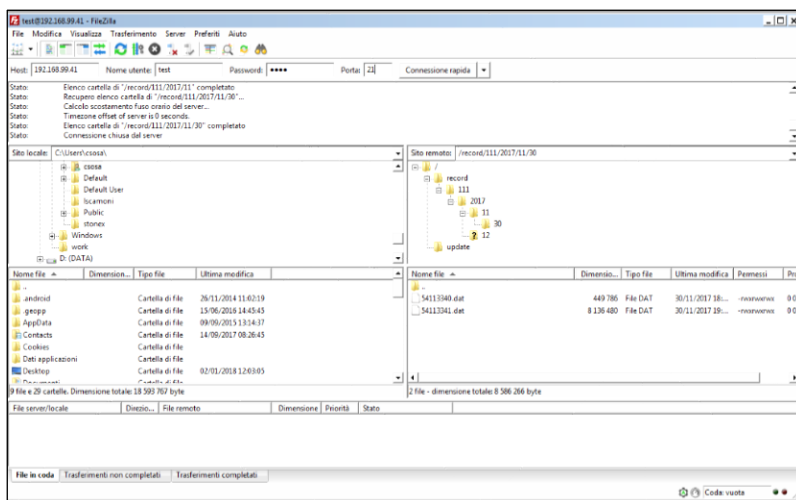
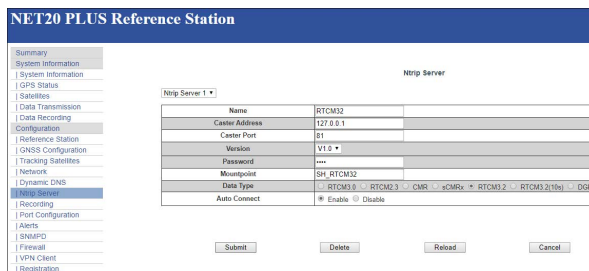


Figure 3-13

3.3.5 Ntrip Server

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



Ntrip Server: 1	
Name	RTCM32
Center Address	127.0.0.1
Center Port	81
Version	V1.0
Password	****
Mountpoint	SH_RTCM32
Data Type	RTCM3.0 / RTCM3.3 / CMR / uCMRx / RTCM3.2 / RTCM3.2(10s) / DGPS
Auto Connect	☒ Enable ☐ Disable

Submit Delete Reload Cancel

Figure 3-14

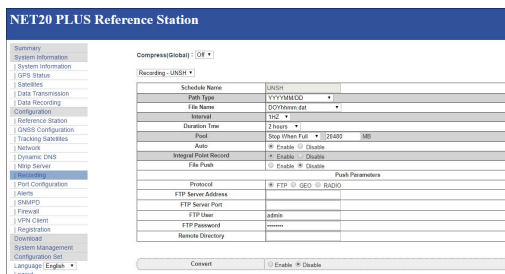
Remarks:

- 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:



NET20 PLUS Reference Station

Summary
System Information
System Information
GPS Status
Serials
Data Transmission
Data Recording
Configuration
Reference Station
UNBS Configuration
Tracking Serials
Network
Dynamic DNS
FTP Server
Port Configuration
Alerts
NMEA0
Firewall
VPN Client
Registration
Download
System Management
Configuration Set
Language (English)
Logout

Compress/Global: Off

Recording - UNBS4

Schedule Name	UNBS4
Path Type	YYYYMMDD
File Name	GCRTM001.dat
Interval	10s
Duration Time	2 hours
Start	Any Other Full
Auto	Enable ☐ Disable ☐
Integral Point Record	Enable ☐ Disable ☐
File Path	Enable ☐ Disable ☐
Protocol	FTP ☐ GDS ☐ BKG2
FTP Server Address	
FTP Server Port	
FTP User	admin
FTP Password	=====
Remote Directory	
Connect	Enable ☐ 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
ssssdddf.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.

NET20 PLUS Reference Station	
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	
Language English ▼	
I/O Configuration	
Bluetooth	☒ Enable ☐ Disable
COM1	☒ Enable ☐ Disable
COM2	☒ Enable ☐ Disable
COM3	☒ Enable ☐ Disable
Ntrip Client	☒ Enable ☐ Disable
Ntrip Caster	☒ Enable ☐ Disable
Port	81
Socket 1	☒ Enable ☐ Disable

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:

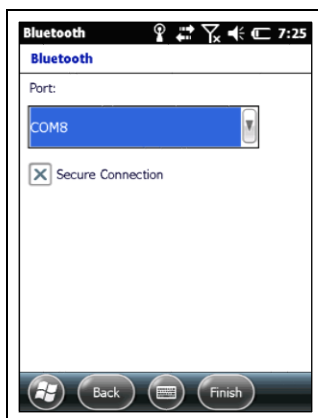


Figure 3-17

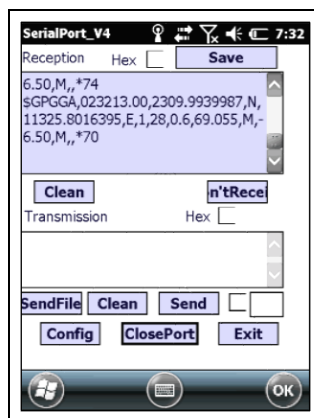


Figure 3-18

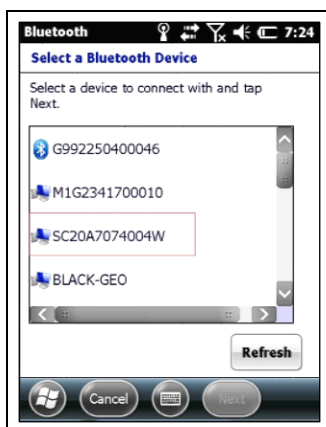


Figure 3-19

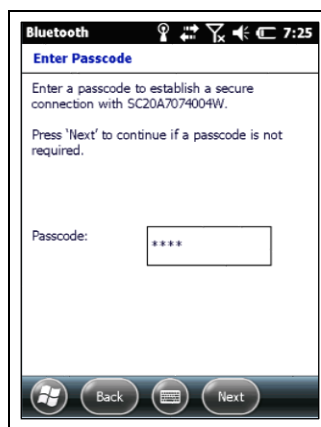


Figure 3-20

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.

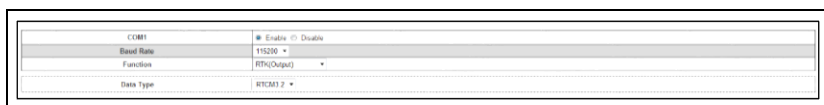


Figure 3-21

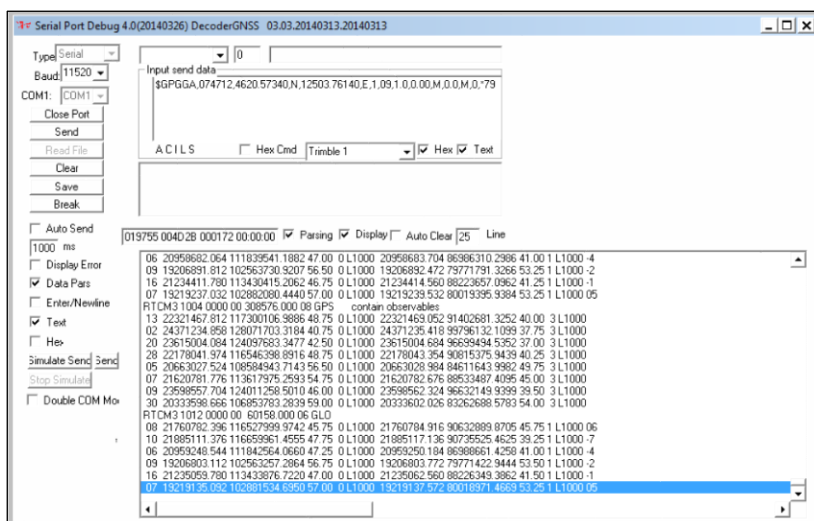


Figure 3-22

3.3.7.3 SOCKET

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

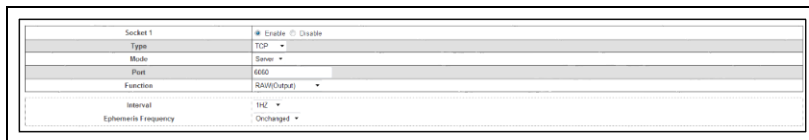


Figure 3-25

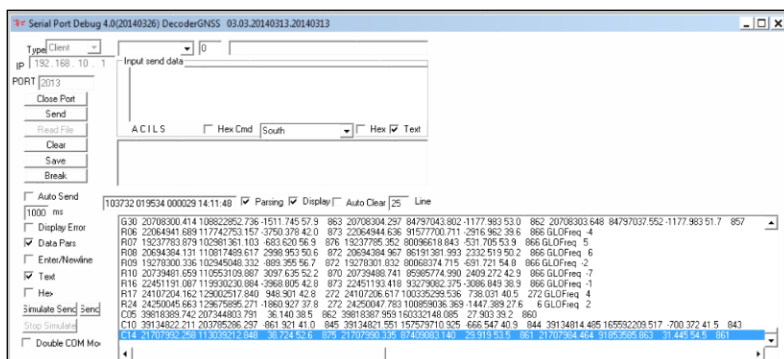
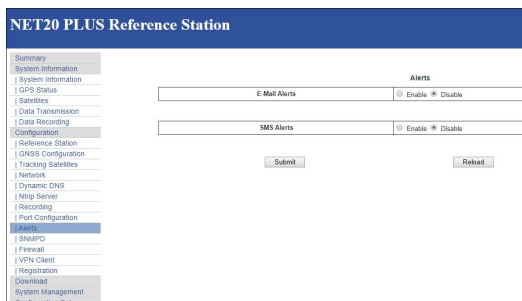


Figure 3-26

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.



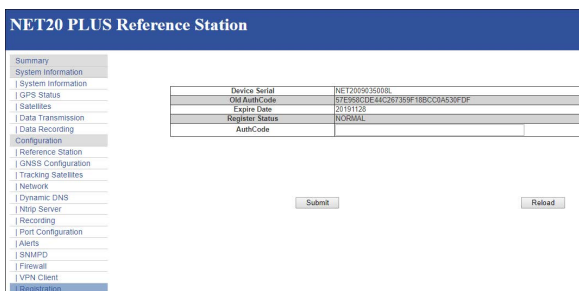
NET20 PLUS Reference Station	
Summary	
System Information	
GPS Status	
Satellites	
Data Transmission	
Data Recording	
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Ntp Server	
Recording	
Port Configuration	
Alerts	
SNMPD	
Firewall	
VPN Client	
Registration	
Download	
System Management	
Configuration Set	

Alerts	
E-Mail Alerts	☐ Enable ☒ Disable
SMS Alerts	☐ Enable ☒ Disable
Submit Reload	

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.



NET20 PLUS Reference Station	
Summary	
System Information	
GPS Status	
Satellites	
Data Transmission	
Data Recording	
Configuration	
Reference Station	
GNSS Configuration	
Tracking Satellites	
Network	
Dynamic DNS	
Ntp Server	
Recording	
Port Configuration	
Alerts	
SNMPD	
Firewall	
VPN Client	
Registration	

Device Serial	NET20090305008
Old Auth Code	1E75959CDE4C2C97359F7B8CC0A830F0F
Expire Date	20151113
Register Status	NORMAL
Auth Code	

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;

NET20 PLUS Reference Station

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

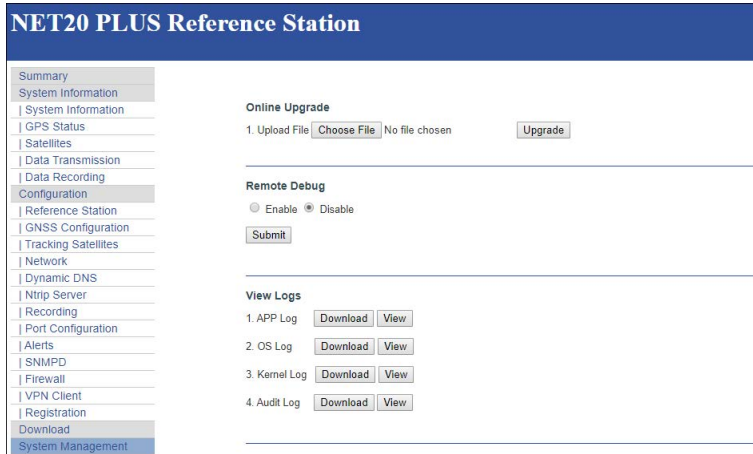
Select	Name	Size	Creation Time	Modification Time	Operation
☐	201907	4.15G	-	-	FTP Push Download Delete
☐	201908	3.12G	-	-	FTP Push Download Delete
☐	201909	2.35G	-	-	FTP Push Download Delete

Select All Package Delete Selected

Figure 3-29

3.5 System Management

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



NET20 PLUS Reference Station

- 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**

Online Upgrade

1. Upload File No file chosen

Remote Debug

☐ Enable ☒ Disable

View Logs

1. APP Log

2. OS Log

3. Kernel Log

4. Audit Log

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

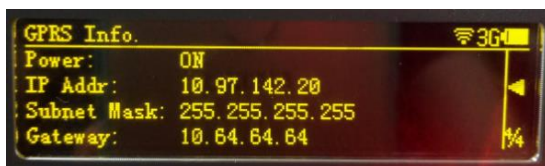


Figure 4-4

4.2 Quick setting

You can quickly set the receiver by the panel key. It includes six parts: device infor, 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.

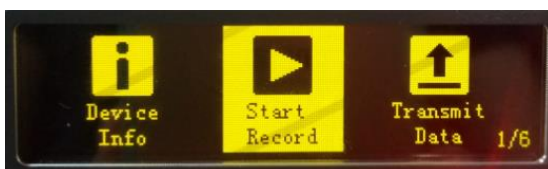


Figure 4-5

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

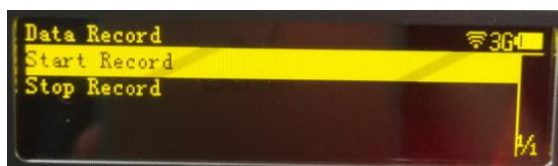


Figure 4-6

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

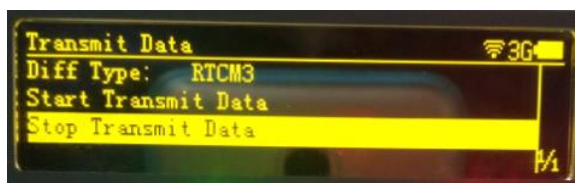


Figure 4-8

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;

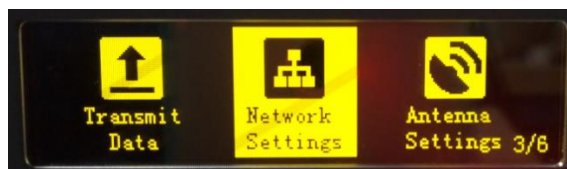


Figure 4-9

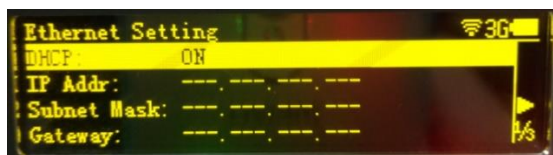


Figure 4-10



Figure 4-11

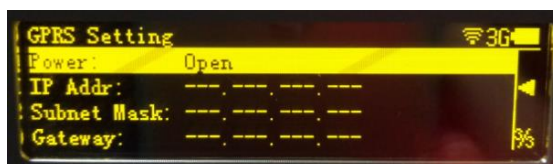


Figure 4-12

Antenna settings:

Not supported at the moment.

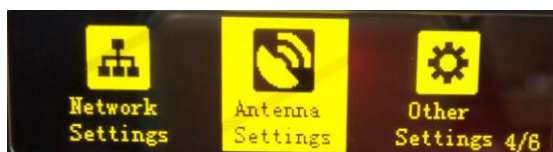


Figure 4-13



Figure 4-14

Other settings:

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

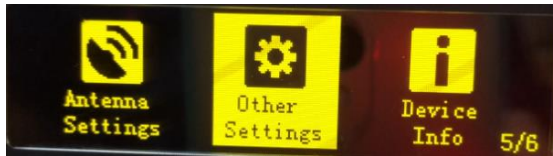


Figure 4-15

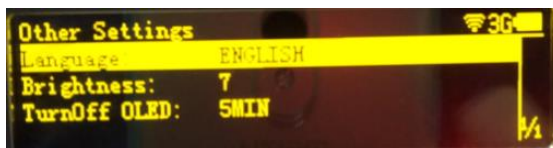


Figure 4-16

Device information:

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

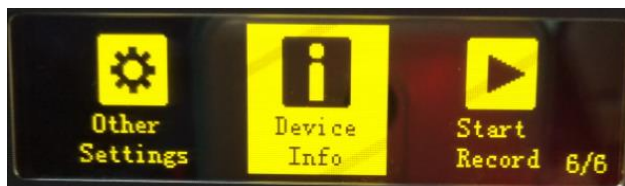


Figure 4-17



Figure 4-18

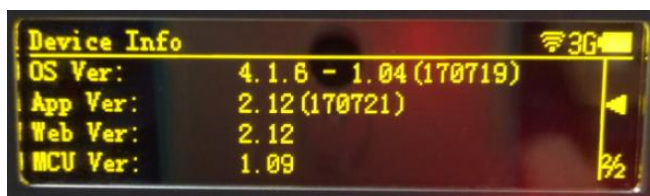


Figure 4-19

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	---