

STONEX SC400A CORS RECEIVER

# **User Manual**



October 2021 – Ver. 1 – Firmware 2.12-210827-STX – Rev.2

www.stonex.it



## Contents

Contents	
Stateme	nt 4
1. Pro	duct Overview
1.1	Top view
1.2	Front view
1.3	Bottom view
2. Tec	nnical Specification
2.1	GNSS
2.2	Physical specification9
2.3	Environmental
2.4	Electrical9
2.5	Connection Ports
2.6	Data Recording 10
2.7	Data Streaming 10
2.8	User Interface and system configuration11
2.9	Networking Services
3. Ope	ration12
3.1	Power ON/OFF12
3.2	Connect External accessories 12
4. Wel	o UI
4.1	Summary and System Information 14
4.1.1	Summary14
4.1.2	System Information 14
4.1.3	GPS Status
4.1.4	Satellites
4.1.5	Map
4.2	Reference Station
4.2.1	Reference Station
4.2.2	GNSS Configuration 21
4.2.3	Tracking Satellites
4.3	NTRIP Server
4.4	Recording
4.5	Port Configuration
October 20	021 – Ver. 1 Stonex SC400A CORS Receiver – User Manual 2



	4.6	Network	29
	4.6.1	Network	29
	4.6.2	Dynamic DNS	30
	4.6.3	FTP Server	31
	4.6.4	NTP Server	32
	4.6.5	SNMPD	33
	4.6.6	Firewall	34
	4.6.7	VPN Client	35
	4.6.8	Frp Setting	36
	4.7	Administration	37
	4.7.1	Alerts	37
	4.7.2	Registration	38
	4.7.3	Configuration Set	39
	4.7.4	Remote Debug	40
	4.7.5	System Management	41
	4.8	Download	42
	4.9	Language and Log Out	42
5	. Bun	dles	43
A	ppendix	1: Copyrights, warranty, and environmental recycling	45
	Copyri	ghts and trademarks	45
	Releas	e Notice	45
	Standa	rd Limited Warranty	45
	Shippiı	ng policy	46
	Firmw	are/Software warranty	46
	Over V	/arranty repair(s) policy	46
	Disclai	mer and Limitation of Remedy	46
	Instrur	nents	46
	Enviro	nmental recycling	47
	For	countries in the European Union (EU)	47
	For	countries outside European Union (EU)	47
A	ppendi>	2: Safety Recommendations	47
	Warniı	ngs and Cautions	47
	Wirele	ss Module Approval	48
	Instrur	nent Approval	48

Stonex SC400A CORS Receiver – User Manual 3



### **Statement**

Please read carefully:

The final interpretation of this user manual belongs to STONEX.

Thank you very much for your purchase. For directions on how to use the product, please be sure to read the user manual.

This user manual is only for your receiver. If your receiver does not match the case in user manual, the actual situation of the receiver shall prevail.

Information in this document is subject to change without notice; STONEX reserves the right to change or improve its products and to make changes in the content without obligation to notify any person or organization of such changes or improvements. If you have any questions, please contact customer service center, or contact our authorized dealers.

Customer safety is important. Please carefully read the notes and instructions in User Manual. To avoid unexpected damage, you should only use original supplied parts. If you do not use the system with the correct procedure or connect incompatible accessories, cause the equipment damage, and may even endanger other person and your safety. In this regard, the company does not assume any responsibility.

### **1. Product Overview**

SC400A is a multipurpose CORS receiver for engineering, monitoring and other applications. The product is suitable for project applications such as vehicle monitoring, engineering inspection and automated data collection.

This chapter provides basic information to help you get familiar with your CORS receiver.

Key Features:

- Small and compact
- GPS/Galileo/GLONASS/BeiDou/QZSS/IRNSS\*
- Atlas L-band corrections
- Interference Mitigation Technology
- Easy configuration from Web UI and remote server.
- Adapt to power supply requirements in various environments
- NTRIP Caster/Server/Client
- IP67



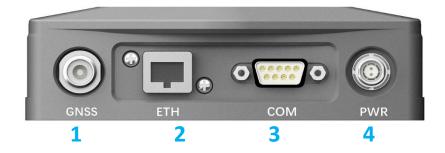
# 1.1 Top view





	Item	Led Color	Description
C	Power indicator	Green	On: Power supplied Off: Power off
<b>↓</b> ↑	Datalink indicator	Green	Always on: Float solution / fixed solution Flash each 1s: Single solution Off: Invalid solution
	Storage indicator	Green	Flash: Recording data
×	Satellite indicator	Green	Flash: satellites visible

### 1.2 Front view



Num.	Item	Description
1	GNSS	TNC, external GNSS slave antenna connector
2	ЕТН	Wired Ethernet port
3	СОМ	DB9 serial port
4	PWR	8 to 36 VDC external power input



### 1.3 Bottom view





# 2. Technical Specification

#### 2.1 GNSS

Board: Hemisphere Phantom 20

Channels : 800

Satellite signals tracked

Satellite	Signals
GPS	L1 C/A, L1C, L1P, L2C, L2P, L5
GLONASS	L1, L2, L3
BeiDou	B1, B2, B3, ACEBOC
Galileo	E1, ALTBOC, E5a, E5b, E6
QZSS	L1 C/A, L1C, L2C, L5, LEX
IRNSS	L5*
SBAS	L1, L5

Update Rate: 10Hz Standard, 20Hz Optional

Position Accuracy

Positioning mode	Horizontal	Vertical
Static	3 mm + 0.1 ppm RMS	3.5 mm + 0.4 ppm RMS
RTK	8 mm + 1 ppm RMS	15 mm + 1 ppm RMS

Initialization time: < 10 s

Initialization reliability: > 99.9%



# 2.2 Physical specification

#### Weight: 435 g

Dimensions: 131 mm x 97 mm x 37 mm

### 2.3 Environmental

Operating Temp	-30°C to 65°C (-22°F to 149°F)
Storage Temp	-45°C to 80°C (-49°F to 176°F)
Humidity	100% non-condensing
Dust and Water Protection	IP67
Drop	Designed to endure to a 2 m drop on concrete floor with no damage

#### 2.4 Electrical

Supply voltage         8 to 36 VDC external power input	
---	--

### 2.5 Connection Ports

I/O Connectors	Power port, Lemo connector 1 Serial port, DB9 Ethernet port, RJ45 100/1000 Mbps GNSS antenna, TNC female
Bluetooth	5.0 + EDR
Wi-Fi	802.11 b/g/n/ac



## 2.6 Data Recording

Internal Memory	32G Multi storage sessions
Data types	Binary, RINEX, BINEX
Data rates	2S, 5S, 10S, 15S, 30S, 60S, 1Hz, 2Hz, 5Hz, 10Hz, 20Hz (Optional)

# 2.7 Data Streaming

Number of streams	1 NTRIP server streams,1 NTRIP Client streams,5 Socket (TCP / UDP) streams
Streaming ports	Wi-Fi, Ethernet, COM
Navigation outputs	GGA, GSA, GSV, ZDA, RMC, VTG, GST, GLL, HDT, FVI, HPR, KSXT, ATTSTAT, RTKSTAT, VCT, RD1, GGA2, BIN3, BIN5, BIN209
Reference outputs	RTCM 2.x-3.x, CMR, CMR+, RINEX, BINEX



# 2.8 User Interface and system configuration

LEDs	Power, satellite, datalink, storage
Operating system	Linux

## 2.9 Networking Services

NTRIP	Client/Server/Caster
Remote Management	Remote config by STONEX Software
FTP server	For data download
Email alerts	For low storage and other warning messages
NTP server	Support
Others	DDNS, VPN, SNMPD, Firewall



## 3. Operation

#### 3.1 Power ON/OFF

SC400A will turn on automatically after connecting the 2-pin power cable and receiving power. After switching on, the indicators will show the status of the device. For example, the power indicator will turn green. SC400A shuts down if not connected to power.

#### 3.2 Connect External accessories

To work the SC400A needs to connect to the external antenna, you can connect the external antenna to the GNSS port.



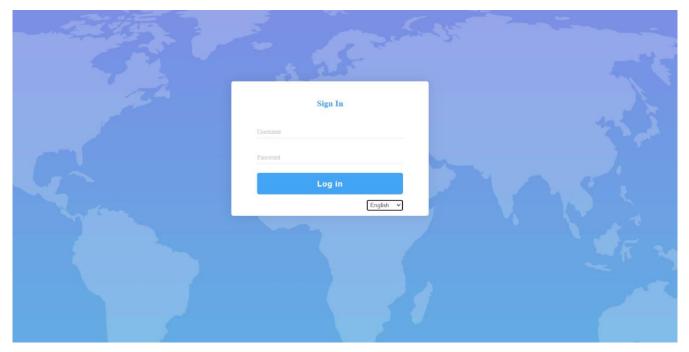
### 4. Web UI

SC400A has the WEB interface function, you can connect to the SC400A's Wi-Fi, enter the WEB interface and view device information, and set up it. The Wi-Fi hotspot name is the serial number of the receiver.

In the browser window enter the IP address: **192.168.10.1**. This address will open the user registration page (shown below), in which you need to fill in the username and password. For the first registration you can use the login data shown below. You will be able to change the password after your first login.

Username: admin

Password: password



After authentication, it will be possible to see the name of the instrument and the list of available commands (below picture). The commands are shown and analyzed in the following paragraphs.



#### 4.1 Summary and System Information

Summary command does not have submenus. The System command has 3 submenus: System Information, GPS status, and Satellites, which will be explained below.

The first two pages of the Summary and System Information command give information about the device and its operation. The other pages are dedicated to configuration. Each configuration page has the Submit and Reload buttons at the bottom: no change is effective if the Submit button is not pressed. Reload is used to reload the page with the last saved values

#### 4.1.1 Summary

As shown in the figure below, the Summary reports general information about the Station.

SC400A Refe	rence S	tation		STONEX
Summary				
System Information	$\sim$	Station Name	400A	
Reference Station	$\sim$	Expire Date	20211207	
Ntrip Server		Run Time	0 day 17 hour 58 min	
Recording		Null Time	o day 17 hour 30 hint	
Port Configuration				
Network Administration	×	Device Model	SC400A	
Download	~	Device Serial	SC4003A2100009	
Language English V		GNSS Model	P20	
		GNSS Serial	21830586	
		Latitude Height	45°33' 43.53262" 205.630 m	
		GNSS Status	Single	
		Local Time	2021-09-30 09:14:20	
		Internal Memory	315.695 MB / 469.510 MB (67% Free)	
		Data Memory	29.371 GB / 29.646 GB (99% Free)	
		Battery Power	-%	
		Power Source	External	

#### 4.1.2 System Information

In System information page the information is divided into blocks, starting from the top we find the name of the station, expiration date and since it has been in operation. Next, we find information on the model of the device and its serial number as well as the model of the GNSS and its serial number. Below we find information on the position, GNSS status and time. After we find a section dedicated to information on the memory. Finally, we have the information on power supply.



#### 4.1.3 GPS Status

Status page displays the current SC400A positioning state, the base station coordinates and antenna type, height, and measurement mode.

#### \$ **SC400A Reference Station** STONEX Summary System Information Local Time 2021-09-30 09:47:09 (GPS Time + 0) | System Information Satellites 34/38 | GPS Status 9°10' 57.39022" Longitude | Satellites Latitude 45°33' 43.52794" | Map Height 206.346 m Reference Station $\sim$ Status Single Ntrip Server Recording PDOP 0.774 Port Configuration HDOP 0.474 Network HRMS 0.949 Administration 1.224 VRMS $\sim$ Download Language English 🗸 Logout MET Type ZZ11A Pressure - hPa Temperature - °C Humidity - %RH Antenna Type STXSA1200 STXR Antenna Height 0 mm Measurement Mode Bottom of antenna mount



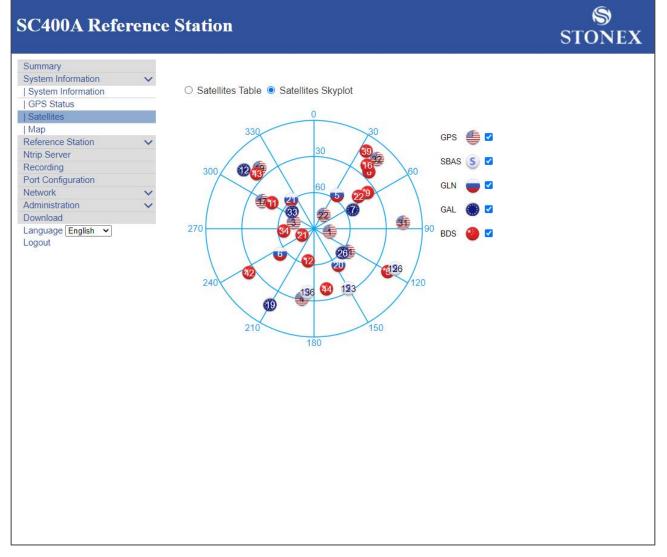
#### 4.1.4 Satellites

In this page you can choose what to display. By selecting the option at the top, you will see the list of satellites, or the sky plot (both screens in the figures below). In the satellites table the different colors show used satellites (green) and tracked (white).

C400A Refe	rence S	Station									STC
Immary											
stem Information	$\sim$										
system Information		Satellites T	able	○ Satellites \$	Skyplot						
PS Status											
atellites		Туре	sv	Elev.[Deg]	Azim.[Deg]	L1/G1/(B1,B1C)/E1	L2/G2	L5/E5a/B2a	G3/E5b/(B2I/B2b)	E5/B2	L6/E6/B3
lap			37			[dBHz]	[dBHz]	[dBHz]	[dBHz]	[dBHz]	[dBHz]
eference Station	~	GPS	1	79	88	52	47	56			-
rip Server		GPS	3	70	282	51	47	55	-		
cording		GPS	4	28	190	45	42	48		-	-
t Configuration		GPS	8	9	174	38	43	43	-		-
work	~	GPS	17	40	300	47	47	-		-	-
ministration	~	GPS	19	19	318	42	38	-	-	-	-
wnload		GPS	21	58	122	50	47	-	-	-	-
nguage English V		GPS	22	78	24	52	47	-		-	-
out		GPS	31	15	90	44	47	-		-	-
		GPS	32	15	42	44	47	44		-	-
		GLONASS	4	9	40	44	43	-		-	-
		GLONASS	5	59	34	55	55		-	-	-
		GLONASS	6	52	230	44	-			-	-
		GLONASS	20	58	144	44	54				
		GLONASS	20	56	324	40	54				-
								-	-	-	-
		BDS	5	19	120	43	-	-	-	-	44
		BDS	6	25	44	45	•	-	-	-	46
		BDS	9	36	58	46	-	-	-	-	48
		BDS	11	47	304	50	-	-	-	-	51
		BDS	12	65	192	50	-	-	-	-	55
		BDS	16	21	40	45		-	-		45
		BDS	21	76	236	55	-	54	-		56
		BDS	22	46	54	54	-	52	-	-	54
		BDS	34	65	272	54	-	52	-	-	54
		BDS	39	13	34	42	-	43		-	44
		BDS	42	23	236	45	-	45	-	-	47
		BDS	43	22	314	46	-	45	-	-	46
		BDS	44	42	168	52	-	49		-	51
		Galileo	7	56	66	52	-	53	-	-	55
		Galileo	8	9	42	41		42		-	42
		Galileo	12	13	308	36		40		-	38
		Galileo	19	15	208	36		38	-	-	39
		Galileo	26	61	128	51		53			55
		Galileo	33	64	310	51	-	53		-	55
											- 04
		SBAS	123	33	150	45	-	-	-	-	-
		SBAS	126	15	116	39	-	-	-	-	-
		SBAS	136	37	186	45	-	-	-	-	-
									6	E5 = E5AltBOC	B2 = B2ACEBO



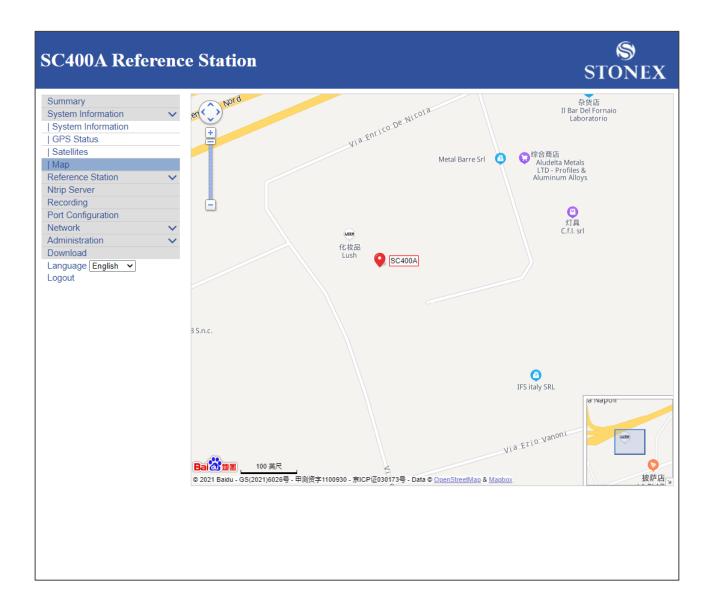
# SC400A Reference Station





#### 4.1.5 Map

On this page you can see the position of the station on the map.





#### 4.2 Reference Station

This command is for the GNSS station configuration and consists of site information, antenna and coordinates. It is made up of 3 subcommands: Reference Station, GNSS Configuration, Tracking Satellites.

#### 4.2.1 Reference Station

This is a very important page if the device is used as base. If, on the other hand, it is used as rover, it is enough to set the type of antenna.

Here you can enter information about the station, number of receivers and you can enter settings about the time zone, country, web server protocol and HTTP server port. The second block of information refers to the antenna. You can select the antenna from those available (or upload new ones). You can read the antenna's serial number, and the values relating to the chosen antenna. Below is the information about working mode. Lastly, you can find the block of information about the station coordinates. The coordinates can be entered manually (as geodetic coordinates or Cartesian coordinates), or if there are no known coordinates, the current position of the instrument can be loaded. It is possible to enter the height of the point on the ground, the antenna height, and its measurement mode. Measurement mode indicates whether the coordinates are referred to the phase center or to the ground. If they refer to the ground, any height from the ground can be indicated in the antenna height field. These settings are reflected in the recorded files (see Recording menu) and in the coordinates transmitted by the base (See NTRIP server menu).



#### **SC400A Reference Station**

SC400A Reference St	tation	S Stone
Summary		
System Information V	Observer Name	OBSERVER
System Information   GPS Status	Agency Name	AGENCY
Satellites	Station Name	400A
Map	Marker Number	
Reference Station		
Ntrip Server	Marker Type Receiver Number	
Recording Part Configuration	Country Code	ITA - Italy
Port Configuration Network	Site ID	
Administration V		
Download	Time Zone	
Language English V	Web Server Protocol	
Logout	HTTP Server Port	80
	Antenna Type	STXSA1200 STXR   Download Choose File No file chosen
	Antenna Serial	
	R(mm)	0
	H(mm)	0
	HL1(mm)	134.69
	HL2(mm)	150.03
	Working Mode	Base O Rover
	Base Position	Repeat Position
	Coordinate System	Geodetic Coordinates (B,L,H) V
		9 0 10 57 , 3768732 CLoad Current Position
		45 0 33 1 43 . 4978496 " Load Smooth Position
		206.28799999999999
	Height of the point on the ground(m)	206.146
	Antenna Height(mm)	0 HL1 HL2 A
	Measurement Mode	Bottom of antenna mount V Height of the point on the ground.
	Submit	Reload



#### 4.2.2 GNSS Configuration

On this page you can set information about the satellite systems. Cut-off angle, constellations used, RTK mode, interference detection. Excluding the cut off angle, all other settings are a series of options that can be activated.

SC400A Refe	renc	e Station			S Stonex
Summary					
System Information	~				
System Information			GNSS Config	juration	
GPS Status		Cutoff Angle	10	]	
Satellites		1PP \$	O Enable   Disable	J	
Map		Smooth Pseudorange	C Enable     Disable		
Reference Station	~	BDS	Enable      Disable		
GNSS Configuration		GPS	Enable O Disable		
Tracking Satellites					
Ntrip Server		GLONASS	Enable      Disable		
Recording		Galileo	Enable O Disable		
Port Configuration		QZ\$\$	O Enable 💿 Disable		
Network	~	SBAS	🔿 Enable 💿 Disable		
Administration	~	RTK MODE	NORMAL O SUREFIX		
Download Language English 🗸		Interference Detection	O Enable 💿 Disable		



#### 4.2.3 Tracking Satellites

On this page, it is possible to select satellites to exclude from tracking. With the sidebar you can scroll down to see all the satellites of each constellation. Below are the commands to select all the satellites and to deselect them all.

#### **SC400A Reference Station**

STONEX

										1
mmary										
stem Information					_					
ystem Information					Track	king Satellites	\$			
PS Status	GPS	Don't track	Glonass	Don't track	BeiDou	Don't track	Galileo	Don't track	QZSS	Don't track
atellites	G1		R1		C1		E1		J193	
ap ference Station	G2		R2		C2		E2		J194	
eference Station	G3	0	R3	0	C3		E3		J195	
VSS Configuration										
acking Satellites	G4		R4		C4		E4		J196	
ip Server	G5		R5		C5		E5		J197	
ording	G6		R6		C6		E6		J198	
Configuration	G7		R7		C7		E7		J199	
ork 🗸	G8	0	R8	0	C8		E8	0	J200	0
ninistration 🗸										
juage English 🗸	G9		R9		C9		E9		J201	
out	G10		R10		C10		E10		J202	
	G11		R11		C11		E11			
	G12		R12		C12		E12			
	G13		R13		C13		E13			
	G14		R14	_	C14		E14	_		
	G15		R15		C15		E15	0		
	G16	0	R16		C16	0	E16			
	G17	0	R10		C10		E17	0		
	G18		R18		C18		E18			
	G19	0	R10	0	C19		E19	0		
	G20		R20		C20		E20			
	G20 G21		R20		C20		E20 E21			
	G21		R21		C21		E21			
	G22		R22		C22		E22			
	G23 G24		R23		C23		E23			
	G24 G25		1324	0	C24		E24			
	G26				C26		E26			
	G27				C27		E27	0		
	G28	0			C28		E28			
	G29				C29		E29			
	G30				C30		E30			
	G31				C31		E31			
	G32				C32		E32			
					C33		E33			
					C34		E34			



#### 4.3 NTRIP Server

Command for data transmission configuration with NTRIP protocol. This command does not have submenus. On the only page available in this section, you can set the transmission content and the server for the SC400A reference station. The password on this page can be entered arbitrarily but the field cannot be left blank. When [Auto Connect] is chosen, after the network is disconnected, the data transmission will be connected automatically, otherwise the transmission will have to be started manually. Before setting the parameters, go back to the reference station page and make sure the base station coordinates are correct. If you need to start with known coordinates, enter the known coordinates. After setting the parameters. In the status bar, you can see the status of the data transfer displayed.

If the data must be transmitted to an external caster: address, port and password are those of the external caster.

If SC400A is to act as a caster: NTRIP caster function must be enabled (see Port Configuration page) address is 127.0.0.1, port must be the same as that indicated on the NTRIP caster function (see Port Configuration page).

Phase center: if enabled, the transmitted coordinates are correct for the offset of the phase center. Otherwise, the coordinates defined on the Reference Station page are transmitted.

SC400A Reference S	Station					s	S TONEX
Summary System Information System Information GPS Status Satellites			Ntrip	Server			
Мар	Name Server Address	Mountpoint	Data Type	Status	Start Time	Data Size	Operation
Reference Station 🗸						I	
Reference Station							
GNSS Configuration	Add Connection V						
Tracking Satellites	Name						
Ntrip Server							
Recording	Server Address						
Port Configuration	Server Port						
Network V Administration	IFNAME	AUTO 🗸					
Download	Version	V1.0 V					
Language English 🗸	Password						
Logout	Mountpoint						
	Data Type			0 OMD.			DAW
					● RTCM3.2 ○ R	UX O DGPS (	
	Interval	1HZ 🗸	-				
	Ephemeris Frequency	Onchang					
	Auto Connect		e O Disable				
	Phase Center	Enab	e O Disable				
	Submit	]			A	teload	



#### 4.4 Recording

Section for data recording and RINEX conversion. At the top of the page, you can see what is being recorded and in what format. Recording can be stopped from this bar. By clicking on the file contained in the Path cell you can view the recorded files (see the second picture below, you can perform some operations on the recorded files, such as FTP push).

#### \$ **SC400A Reference Station** STONEX Summary System Information Raw Data Recording Configuration | System Information | GPS Status | Satellites I Map Start File Schedule Name Duratio Interval Path Status Operation Time Reference Station Size Tme $\sim$ | Reference Station 2021-09-30 14:00:01 8.199 MB Edit Start 1S INTERNAL/202109/30/RNX3H/400A273O.dat RNX3H 60 min recording | GNSS Configuration Stop | Tracking Satellites Ntrip Server Recording Recording - RNX3H 🗸 Port Configuration **RNX3H** Schedule Name Network Path Type YYYYMM/DD/Session 🗸 Administration Download File Name ssssdddf.yyt ~ Language English 🗸 File System /Internal V Logout Interval 1HZ 🗸 Duration Tme 1 hour 🗸 🗸 Delete When Full V 12000 МВ Pool Auto Enable O Disable Integral Point Record Enable O Disable File Push 🔿 Enable 💿 Disable Push Parameters FTP Protocol FTP Server Address FTP Server Port FTP User FTP Password Remote Directory Convert Enable O Disable Rinex 3.04 🗸 🗹 Mixed Nav Compress .zip 🗸 🗌 Antenna Phase Center 🗆 File Push Compress(Global) : Off 🗸 Submit Delete Reload



STONEX

### **SC400A Reference Station**

System Information							
1. O set a set of a s	~						
System Information   GPS Status		Home	> INTERNAL > 202109 > 3	0 > RNX3	н		
Satellites							
Map		Select	Name	Size	Creation Time	Modification Time	Operation
Reference Station	$\sim$		400A273A.dat	7.3M	2021-09-30 00:00:00	2021-09-30 01:00:00	Convert FTP Push Email Download Delete
Reference Station			400A273A_RINEX304.zip	6.623M	2021-09-30 01:02:58	2021-09-30 01:02:58	FTP Push Email Download Delete
GNSS Configuration			400A273B.dat	7.293M	2021-09-30 01:00:00	2021-09-30 02:00:00	Convert FTP Push Email Download Delete
Tracking Satellites			400A273B_RINEX304.zip	6.401M	2021-09-30 02:02:48	2021-09-30 02:02:48	FTP Push Email Download Delete
Ntrip Server			400A273C.dat	7.533M	2021-09-30 02:00:00	2021-09-30 03:00:00	Convert FTP Push Email Download Delete
Recording			400A273C RINEX304.zip	6.526M	2021-09-30 03:02:50	2021-09-30 03:02:50	FTP Push Email Download Delete
Port Configuration Network	~		400A273D.dat	7.76M	2021-09-30 03:00:00	2021-09-30 04:00:00	Convert FTP Push Email Download Delete
Administration	ž		400A273D RINEX304.zip	6.853M	2021-09-30 04:03:04	2021-09-30 04:03:04	FTP Push Email Download Delete
Download			400A273E.dat	8.418M	2021-09-30 04:00:00	2021-09-30 05:00:00	Convert FTP Push Email Download Delete
Language English 🗸			400A273E_RINEX304.zip	7.353M	2021-09-30 05:03:15	2021-09-30 05:03:15	FTP Push Email Download Delete
Logout							
			400A273F.dat	8.43M	2021-09-30 05:00:00	2021-09-30 06:00:00	Convert FTP Push Email Download Delete
			400A273F_RINEX304.zip	7.628M	2021-09-30 06:03:26	2021-09-30 06:03:26	FTP Push Email Download Delete
			400A273G.dat	8.777M	2021-09-30 06:00:00	2021-09-30 07:00:00	Convert FTP Push Email Download Delete
			400A273G_RINEX304.zip	8.338M	2021-09-30 07:03:44	2021-09-30 07:03:44	FTP Push Email Download Delete
			400A273H.dat	8.517M	2021-09-30 07:00:00	2021-09-30 08:00:00	Convert FTP Push Email Download Delete
			400A273H_RINEX304.zip	7.67M	2021-09-30 08:03:33	2021-09-30 08:03:33	FTP Push Email Download Delete
			400A273I.dat	8.323M	2021-09-30 08:00:00	2021-09-30 09:00:00	Convert FTP Push Email Download Delete
			400A273I_RINEX304.zip	7.304M	2021-09-30 09:03:14	2021-09-30 09:03:14	FTP Push Email Download Delete
			400A273J.dat	8.203M	2021-09-30 09:00:00	2021-09-30 10:00:00	Convert FTP Push Email Download Delete
			400A273J_RINEX304.zip	7.187M	2021-09-30 10:03:28	2021-09-30 10:03:28	FTP Push Email Download Delete
			400A273K.dat	8.009M	2021-09-30 10:00:00	2021-09-30 11:00:00	Convert FTP Push Email Download Delete
			400A273K_RINEX304.zip	7.209M	2021-09-30 11:03:20	2021-09-30 11:03:20	FTP Push Email Download Delete
			400A273L.dat	8.41M	2021-09-30 11:00:00	2021-09-30 12:00:00	Convert FTP Push Email Download Delete
			400A273L_RINEX304.zip	7.732M	2021-09-30 12:03:33	2021-09-30 12:03:33	FTP Push Email Download Delete
			400A273M.dat	8.523M	2021-09-30 12:00:00	2021-09-30 13:00:00	Convert FTP Push Email Download Delete
			400A273M_RINEX304.zip	7.866M	2021-09-30 13:03:53	2021-09-30 13:03:53	FTP Push Email Download Delete
			400A273N.dat	8.696M	2021-09-30 13:00:00	2021-09-30 14:00:00	Convert FTP Push Email Download Delete
			400A273N_RINEX304.zip	7.832M	2021-09-30 14:03:48	2021-09-30 14:03:48	FTP Push Email Download Delete
			400A273O.dat	8.515M	2021-09-30 14:00:00	2021-09-30 15:00:00	Convert FTP Push Email Download Delete
			400A2730 RINEX304.zip	8.011M	2021-09-30 15:03:55	2021-09-30 15:03:55	FTP Push Email Download Delete
			400A273P.dat	1.292M			Convert FTP Push Email Download Delete
		0	400A273P.0at	1.20210	2021-08-30 10:00:00	2021-08-30 13.08.10	Convert FTF Fush Email Download Delete

Path type defines the folder structure where files are saved.

File Name defines the name of the files.

They both use variables:

YYYY	year
MM	month
DD	day of the month
DOY	day of the year
Session	Schedule name



Tip: to get file names compliant with RINEX standards use the names: ssssdddf.yyt (version 2) or Rinex302.dat (version 3).

Pool allows you to manage the data memory: if enabled, it is possible to define a quantity of disk space to dedicate to the recording session. When the sum of the session files reaches the defined limit, if Delete is set, the oldest files are deleted, if Stop is set, the recording stops.

It is recommended to always enable the Pool if the Auto option is enabled.

Auto: if enabled, it records continuously, otherwise when the first file is finished it stops.

Integral point record: if enabled, it sets the start time of the files as a multiple of the set duration, otherwise the start time depends on the first start. It is recommended to enable this option.

File push: Enable automatic transfer of raw files via FTP.

Convert: enable the conversion of the raw file to RINEX. For the RINEX 3.x format the Mixed Nav option is available: if enabled, it creates a single mixed navigation RINEX file.

Phase center antenna: if enabled, the header coordinates are referred to the phase center.

File Push: Enables automatic transfer of RINEX files via FTP. This option is effective only if raw file transfer is enabled. The FTP server and the access parameters are those indicated in the Push Parameters section.



\$

#### 4.5 Port Configuration

Communication with the receiver and data transmission, on this page you can view the list of I/O ports and you can access their configuration. You can click on the cell containing the port's name to view the possible configuration at the bottom.

# **SC400A Reference Station**

GPS StatusPortStatusBaud RateProSatellitesMapEnable-MapReference Station✓COM3Enable115200RSGNSS ConfigurationMtrip ClientDisable-NTTracking SatellitesSocket 1Disable-NTSocket 2Disable-TSocket 3Disable-TSocket 4Disable-TSocket 5Disable-TSocket 6Disable-TSocket 7Disable-TSocket 8Disable-TSocket 9Disable-TSocket 9Socket 9Socket 9Socket 9Socket 9	RS232       NTRIP       CLIENT       NTRIP       CASTEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP	 CLIENT 183.60.177.84:201 ASTER 6070 ERVER 6060	Function CMD DEBUG 012 Access data Caster RAW RAW RAW RAW RAW	
Image: Status       Port       Status       Baud Rate       Processor         Satellites       Image: Status       Bluetooth       Enable       -         Map       COM3       Enable       115200       Rs         Reference Station       ✓       COM3       Enable       115200       Rs         I Reference Station       ✓       Ntrip Client       Disable       -       NT         I GNSS Configuration       ✓       Ntrip Caster       Disable       -       NT         Ntrip Server       Socket 1       Disable       -       T         Socket 2       Disable       -       T         Socket 3       Disable       -       T         Socket 4       Disable       -       T         Socket 5       Disable       -       T         Socket 5 <t< td=""><td>RS232       NTRIP       CLIENT       NTRIP       CASTEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP</td><td></td><td>CMD DEBUG 012 Access data Caster RAW RAW RAW RAW</td></t<>	RS232       NTRIP       CLIENT       NTRIP       CASTEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP		CMD DEBUG 012 Access data Caster RAW RAW RAW RAW	
Satellites           Map         Reference Station           Reference Station           GNSS Configuration           Tracking Satellites         Ntrip Caster         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Socket 1         Disable         -         T         Socket 2         Disable         -         Network         Dynamic DNS           FTP Server         NTP Server           SNMPD           Firewall	RS232       NTRIP       CLIENT       NTRIP       CASTEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI		CMD DEBUG 012 Access data Caster RAW RAW RAW RAW	
Satellites           Map         Reference Station           Reference Station           GNSS Configuration           Tracking Satellites         Ntrip Caster         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Ntrip Caster         Disable         -         Socket 1         Disable         -         T         Socket 2         Disable         -         Network         Dynamic DNS           FTP Server         NTP Server           SNMPD           Firewall	RS232       NTRIP       CLIENT       NTRIP       CASTEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI       TCP       SERVEI		CMD DEBUG 012 Access data Caster RAW RAW RAW RAW	
Image         Reference Station           Reference Station           Reference Station           GNSS Configuration           Tracking Satellites         Ntrip Server         Recording         Port Configuration         Network           Dynamic DNS           FTP Server           NTP Server           SNMPD           Firewall	RS232     -       NTRIP     CLIENT       NTRIP     CASTEI       TCP     SERVEI       TCP     SERVEI       TCP     SERVEI       TCP     SERVEI       TCP     SERVEI	-         -           CLIENT         183.60.177.84:201           ASTER         6070           ERVER         6060           ERVER         9000           ERVER         9001           ERVER         9001	DEBUG D12 Access data Caster RAW RAW RAW RAW	
Reference Station           Reference Station           GNSS Configuration           Tracking Satellites         Ntrip Caster       Disable         Ntrip Server         Recording         Port Configuration         Network           Dynamic DNS           FTP Server           NTP Server           SNMPD           Firewall	NTRIP         CLIENT           NTRIP         CASTEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI	CLIENT         183.60.177.84:201           ASTER         6070           ERVER         6060           ERVER         9000           ERVER         9001           ERVER         9001	012 Access data Caster RAW RAW RAW RAW	
I GNSS Configuration       I Map Cheffic Disable       N         I Tracking Satellites       Ntrip Caster       Disable       -       N         Ntrip Server       Socket 1       Disable       -       T         Socket 2       Disable       -       T         Socket 3       Disable       -       T         Network       ✓       Socket 4       Disable       -       T         Socket 4       Disable       -       T       Socket 5       Disable       -       T         Socket 5       Disable       -       T       Socket 5       Disable       -       T         I/O Configuration :	NTRIP         CASTEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI           TCP         SERVEI	ASTER         6070           ERVER         6060           ERVER         9000           ERVER         9001           ERVER         9001	Caster RAW RAW RAW RAW	
I Tracking Satellites         Ntrip Caster       Disable       -       N         Ntrip Server       Socket 1       Disable       -       T         Port Configuration       Socket 2       Disable       -       T         Network       ✓       Socket 3       Disable       -       T         Network       ✓       Socket 4       Disable       -       T         Socket 5       Disable       -       T       Socket 5       Disable       -       T         Socket 5       Disable       -       T       Socket 5       Disable       -       T         I/O Configuration :       I/O Configuration :       Instable       -       T	TCP     SERVE       TCP     SERVE       TCP     SERVE       TCP     SERVE       TCP     SERVE	ERVER 6060 ERVER 9000 ERVER 9001 ERVER 9001	RAW RAW RAW	
Ntrip Server       Socket 1       Disable       -       T         Recording       Socket 2       Disable       -       T         Port Configuration       Socket 3       Disable       -       T         Network       V       Socket 4       Disable       -       T         I Network       V       Socket 4       Disable       -       T         Socket 5       Disable       -       T       Socket 5       Disable       -       T         I Proprint DNS       I/O Configuration :       I/O Configuration :       Instable       -       T	TCP SERVE TCP SERVE TCP SERVE	ERVER 9000 ERVER 9001 ERVER 9001	RAW RAW RAW	
Nutry Server     Socket 2     Disable     -     T       Port Configuration     Socket 3     Disable     -     T       Network     V     Socket 4     Disable     -     T       Socket 4     Disable     -     T       Socket 5     Disable     -     T       Socket 5     Disable     -     T       Interver     Interver     Interver     Interver       Interver     Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver       Interver     Interver     Interver	TCP SERVE TCP SERVE TCP SERVE	ERVER 9000 ERVER 9001 ERVER 9001	RAW RAW RAW	
Port Configuration         Network         Network         Network         Dynamic DNS         FTP Server         NTP Server         SNMPD         Firewall	TCP SERVE	ERVER 9001 ERVER 9001	RAW RAW	
Network     Socket 4     Disable     T         Network           Socket 4     Disable     -     T         Dynamic DNS           Socket 5     Disable     -     T         FTP Server           NMPD      /O Configuration :               Firewall           Plusteeth     M	TCP SERVE	ERVER 9001	RAW	
Network     Socket 4     Disable     -     1       Dynamic DNS     FTP Server     Socket 5     Disable     -     T       NTP Server     I/O Configuration :     I/O Configuration :				
I Dynamic DNS     Socket 5 Disable - T       I FTP Server     INTP Server       I SNMPD     I/O Configuration :	TCP SERVE	ERVER 9001	RAW	
FTP Server       INTP Server       SNMPD       Firewall				
INTP Server ISNMPD I/O Configuration : Firewall Restant				
SNMPD I/O Configuration :   Firewall Riveteeth				
Firewall				
Plusteeth M				
Ern Setting	0			
Administration V Bluetooth © Enable O	Enable      Disable			
Download Function CMD(Input/Ou	put/Output) 🗸			
Language English 🗸				
Logout				
Submit		Reload		
Submit		Reload		

The available functions are:

CMD (Input / Output): allows you to send commands and receive responses

NMEA (Output): send NMEA messages

RTK (Input): receives differential data. Use only if work mode is rover



RTK (Output): Transmits differential data. Use only if work mode is Base RAW (Output): Transmits raw data BINEX (Output): Transmits data in BINEX format

Spectrum Analysis (Output): Function currently under development

NTRIP Client allows you to connect the SC400A to a caster using the NTRIP protocol. Use only if work mode is rover.

NTRIP Caster: if enabled, activates the Caster service. Allows you to set the transmission port and account for the NTRIP client. The account is unique but allows multiple simultaneous connections.

Warning: to use this function, at least one NTRIP Server must be active on address 127.0.0.1 and the same port set in the Caster (See NTRIP Server).



STONEX

#### 4.6 Network

This is the section for the Internet connection configuration and related services, including DDNS, FTP, VPN. Let's see its pages and subcommands below.

#### 4.6.1 Network

This page is mainly set for the data link method used by SC400A.

# SC400A Reference Station



### The Running Network

Priority Network	Wired Net O Wireless Net
Switch Strategy	○ Local Network ● Public Network ○ Disable
Current Network	WAN
Default Gateway	192.168.99.1
DNS	8.8.8.8 1.1.1.1
PING	Timeout :(s) Counts :
PING Address	8.8.8.8

#### **Device Network Settings**

Wired Net	● WAN ○ LAN
DHCP	● Enable ○ Disable
IP	192.168.99.97
Mask	255.255.255.0
Gateway	192.168.99.1
MAC address	40:2E:71:8F:23:72
Link Status	Link connected
Status	Internet access

Wireless Net	Hotspot O Disable
MAC address	E8:4F:25:51:4A:AF
SSID	SC4003A2100009
Password	NONE
IP	192.168.10.1

Submit

Reload



#### 4.6.2 Dynamic DNS

This is the page where it is possible to unable/disable the Dynamic DNS. By choosing the enable key it will be possible to enter the service provider, host name, username, and password.

SC400A Refer	rence S	station		STONEX
Summary				
System Information	$\sim$		Dynamic DNS	
System Information   GPS Status			Dynamic DNS	
1		Dynamic DNS	● Enable ○ Disable	
Satellites		Service Provider	Custom V dyndns.com	
Map Reference Station	~			
Reference Station	•	Host Name		
GNSS Configuration		Username		
Tracking Satellites		Password		
Ntrip Server				
Recording		URL		
Port Configuration				
Network	~			
Network				
Dynamic DNS				
FTP Server				
NTP Server				
SNMPD				
Firewall				
VPN Client				
Frp Setting				
Administration	$\sim$			
Download		Subr	nit Reload	
Language <mark>English →</mark> Logout				



#### 4.6.3 FTP Server

The FTP server feature allows the user to use the CORS as an FTP server. User can download and upload data through it. The anonymous access is enabled by default: we recommend disabling it if the receiver is accessible from the Internet. The Encryption enable the SSL / TLS explicit encryption.

#### (S)**SC400A Reference Station** STONEX Summary System Information $\sim$ System Information **FTP Server** | GPS Status Anonymous Access Enable 🗸 | Satellites Encryption Off ~ | Map Reference Station $\sim$ User admin | Reference Station Password ..... | GNSS Configuration | Tracking Satellites Ntrip Server Submit Reload Recording Port Configuration Network | Network | Dynamic DNS | FTP Server | NTP Server | SNMPD | Firewall | VPN Client | Frp Setting Administration Download Language English 🗸 Logout



#### 4.6.4 NTP Server

NTP (Network Time Protocol) Server allows you to synchronize the computer clock with the time of the receiver.

SC400A Refere	nce Station STO	
Summary		
System Information	×	
System Information	NTPD	
GPS Status		
Satellites	NTP Server   Enable  Disable	
Map	4 Oct 09:59:08 ntpd[31716]: Listen and drop on 0 v6wildcard [::]:123	
Reference Station	4 Oct 09:59:08 ntpd[31716]: Listen and drop on 1 v4wildcard 0.0.0.0:123	
Reference Station	4 Oct 09:59:08 ntpd[31716]: Listen normally on 2 lo 127.0.0.1:123 4 Oct 09:59:08 ntpd[31716]: Listen normally on 3 eth1 192.168.99.62:123	
GNSS Configuration	4 Oct 09:59:08 ntpd[31716]: Listen normally on 4 wland 192.168.10.1:123	
Tracking Satellites	4 Oct 09:59:08 ntpd[31716]: Listen normally on 5 lo [::1]:123	
Ntrip Server	4 Oct 09:59:08 ntpd[31716]: Listen normally on 6 wlan0 [fe80::767a:90ff:fe71:c466%4]:123	
Recording	4 Oct 09:59:08 ntpd[31716]: Listening on routing socket on fd #23 for interface	
Port Configuration	updates	
Network	✓	
Network		
Dynamic DNS		
FTP Server		1
NTP Server		
SNMPD		
Firewall	Submit Reload	
VPN Client		
Frp Setting		
Administration	✓	
Download		
Language English 🗸		
Logout		



#### 4.6.5 SNMPD

If the command SNMPD (Simple Network Management Protocol) is enabled, you can see a page as the picture below, where you can enter the Trap IP and the Allow Access IP.

Trap IP: Receivers can specify some IPs and then automatically send information to those IPs.

Allow Access IP: Receivers can allow some devices to proactively obtain information about receivers through IP addresses.

Summary       Summary         System Information       IGPS Status         I Satellites       Imp         I Map       Reference Station         Reference Station       Imp         I Tracking Satellites       Imp         Ntrip Server       Imp         Recording       Imp         Port Configuration       Imp         I Tracking Satellites       Submit         Ntrip Server       Submit         I Network       V         I SumPD       Imp         I SumPD       Imp         I Sump D       Imp         I Sump D       Imp         I Sump D       Imp         I Sump D       Imp         I Sump D	SC400A Refe	rence S	Station			STONEX
I GPS Status   I GPS Status   Satellites   Map   Reference Station   I Tracking Satellites   Ntrip Server   Recording   Port Configuration   Network   I Dynamic DNS   I FTP Server   I NTP Server   I NTP Server   I SNMPD   Firewall   VPN Client   I Frp Setting   Administration   Download   Language English ▼	System Information	~		SNMPD		
Satellites   Map   Reference Station     Reference Station     Reference Station     GNSS Configuration     Tracking Satellites   Ntrip Server   Recording   Port Configuration   Network     Dynamic DNS     FTP Server     NTP Server     Dynamic DNS     FTP Setting   Administration   Download   Language English ♥						
I Map       Trap IP       (Please separate by ';')         Reference Station          I Reference Station       Italiow Access IP         I Tracking Satellites       Submit         Ntrip Server       Recording         Port Configuration       Reload         I Network       ✓         I Network       ✓         I Network       ✓         I NTP Server       Submit         SNMPD       Firewall         I VPN Client       Fro Setting         Administration       ✓         Download       ✓			SNMPD	● Enable ○ Disable		
Reference Station     Reference Station     GNSS Configuration     Tracking Satellites   Ntrip Server   Recording   Port Configuration   Network     Dynamic DNS     FTP Server     NTP Server   SNMPD     Firewall     VPN Client     Frp Setting   Administration   > Download   Language English >			Trap IP		(Please separate by ';')	
Reference Station   GNSS Configuration   Tracking Satellites   Ntrip Server   Recording   Port Configuration   Network     Network     Dynamic DNS     FTP Server     NTP Server     NTP Server     SNMPD     Firewall     VPN Client     Frp Setting   Administration   ∨   Download   Language English ∨		~	Allow Access IP			
I Tracking Satellites   Ntrip Server   Recording   Port Configuration   Network   I Network   I Dynamic DNS   I FTP Server   I NTP Server   I SNMPD   Firewall   I VPN Client   I Frp Setting   Administration   ∨   Download   Language English ∨	Reference Station			L		
Ntrip Server   Recording   Port Configuration   Network     Network     Dynamic DNS     FTP Server     NTP Server     SNMPD     Firewall     VPN Client     Frp Setting   Administration   >   Download   Language English	GNSS Configuration					
Ntrp Server Recording Port Configuration Network Network Dynamic DNS FTP Server NTP Server SNMPD Firewall VPN Client Frp Setting Administration Download Language English	Tracking Satellites		Cub		Delead	
Port Configuration   Network   Network   Dynamic DNS   FTP Server   NTP Server   SNMPD   Firewall   VPN Client   Frp Setting   Administration   Download   Language English <			Sub	mit	Reload	
Network   Network   Dynamic DNS   FTP Server   NTP Server   SNMPD   Firewall   VPN Client   Frp Setting   Administration   Download   Language English <						
Network         Dynamic DNS         FTP Server         NTP Server         SNMPD         Firewall         VPN Client         Frp Setting         Administration         Download         Language English	Port Configuration					
I Dynamic DNS         I FTP Server         I NTP Server         I SNMPD         I Firewall         I VPN Client         I Frp Setting         Administration         Download         Language English <	Network	$\sim$				
FTP Server           NTP Server           SNMPD           Firewall           VPN Client           Frp Setting         Administration         Download         Language English ✓	Network					
INTP Server         ISNMPD         Firewall         VPN Client         Frp Setting         Administration         Download         Language English ✓						
SNMPD     Firewall     VPN Client     Frp Setting   Administration   Download   Language English <						
Firewall   VPN Client   Frp Setting Administration ✓ Download Language English ✓						
VPN Client         Frp Setting         Administration         Download         Language English	SNMPD					
Frp Setting Administration ✓ Download Language English ✓						
Administration V Download Language English V						
Download Language English V	Frp Setting					
Language English V	Administration	$\sim$				



#### 4.6.6 Firewall

On this page, you can choose whether to turn on the firewall. The firewall feature allows you to protect access to the web interface. There are two protection mechanisms, referred to as Filter table type: whitelist and blacklist. The whitelist allows you to define the only IPs from which you can access the web interface, any other IP is blocked. Blacklist works the opposite way: it allows to define the only IPs that cannot access the web interface while any other IP can access.

# **SC400A Reference Station**

SC400A Refer	ence	Station			STONEX
Summary System Information   System Information	~		Fire	wall	
GPS Status		Network Services Filter			
Satellites			Enable O Disab	le	
Map	_	Filter Table Type	Black List 🗸		
Reference Station	~				
Reference Station					
GNSS Configuration   Tracking Satellites		Source I	P	Ot	peration
Ntrip Server				[	Delete
Recording					
Port Configuration		Add			
Network	$\sim$				
Network					
Dynamic DNS		Subm	hit	Reload	
FTP Server					
NTP Server					
SNMPD					
Firewall					
VPN Client					
Frp Setting					
Administration	$\sim$				
Download					
Language English 🗸					
Logout					



### 4.6.7 VPN Client

This function is under development.

SC400A Refe	rence	Station			<b>S</b> Stonex
Summary System Information   System Information   GPS Status   Satellites	~		VPN Client		
Map		VPN Client	<ul> <li>Settings</li> </ul>		
Reference Station	$\sim$	Enable			
Reference Station			Yes O No		
GNSS Configuration		VPN Protocol	PPTP V		
Tracking Satellites		VPN Server IP			
Ntrip Server		User		7	
Recording		Deserveed			
Port Configuration		Password			
Network	$\sim$	Authentication Algorithm	Auto 🗸		
Network		Encryption Algorithm	Auto 🗸		
Dynamic DNS   FTP Server		MTU	1450	[10001460]	
NTP Server		MRU	1450	[10001460]	
SNMPD			1450	[10001400]	
Firewall		IP			
VPN Client		Mask			
Frp Setting		Gateway			
Administration	$\sim$				
Download					
Language English 🗸					
Logout					
		Subm	nit	Reload	



# 4.6.8 Frp Setting

This function is for internal use.

SC400A Referen	ce Station		S Stonex
Summary System Information System Information GPS Status Satellites		Frp Setting	
Map	Frp Setting	● Enable ○ Disable	
Reference Station	Server		
Reference Station   GNSS Configuration	_		
Tracking Satellites	Port	7000	
Ntrip Server	Token		
Recording	View Logs	View	
Port Configuration	Admin UI (WAN)		
Network 🗸		_	
Network			
Dynamic DNS	Services List		
FTP Server			
NTP Server	Enable State Remark N	ame Protocol Domain/Subdom	ain Remote Port Local Host Port
SNMPD	_		
Firewall	raw	TCP	
VPN Client   Frp Setting	ssh	TCP	22
Administration			
Download	tweb	TCP	80
Language English V			
Logout	l web	HTTP	- 80
-			
	4		•
	Subm	it Rel	bad



#### 4.7 Administration

This section includes Receiver update, alarm configurations, System log, restart/reset commands.

#### 4.7.1 Alerts

On this page you can set alerts send via e-mail and/or SMS. If you want to send text messages, you need to use a mobile network. Below in the page you can see the topics on which the alarm can be triggered. Some of these arguments allow you to set a reference value.

#### S **SC400A Reference Station STONEX** Summary System Information $\sim$ System Information Alerts GPS Status E-Mail Alerts ● Enable ○ Disable | Satellites | Map **SMTP Server** Encryption : Off 🗸 Reference Station $\sim$ | Reference Station From E-Mail Address | GNSS Configuration Test E-Mail Login Name | Tracking Satellites E-Mail Login Password Ntrip Server Recording To E-Mail Address Port Configuration Network | Network **SMS** Alerts ● Enable ○ Disable | Dynamic DNS 13798191635 | FTP Server Phone Number Test | NTP Server | SNMPD | Firewall Temperature is above a limit GNSS satellites drop below an Internal Disk space is close to VPN Client 70 ℃ be full (under 500Mb) amount 5 | Frp Setting Difference between estimated Administration $\sim$ coordinates and base coordinates | Alerts over 40 m | Registration | Configuration Set | Remote Debug Submit Reload System Management Download Language English V Logout



## 4.7.2 Registration

On this page, you can check the registration information of the receiver and the GNSS board.

SC400A Refe	eren	ce Station		<b>S</b> Stonex
Summary				
System Information	$\sim$			
System Information				
GPS Status			ISS Board Registration	
Satellites			155 Doard Registration	
Map		GNSS Serial	21822218	
Reference Station	$\sim$	GNSS Serial GNSS Functionality	OPT=;10Hz;RTK;L2 L5;MULTI GNSS;HEADING;ATLAS LBAND	
Reference Station			OPT-, TOHZ, RTK, LZ_LS, MOLTI_GINSS, HEADING, ATLAS_LBAND	
GNSS Configuration		AuthCode		
Tracking Satellites				
Ntrip Server				
Recording				
Port Configuration				
Network	$\sim$		Dubasia Debasi	
Network			Submit Reload	
Dynamic DNS				
FTP Server				
NTP Server				
SNMPD				
Firewall				
VPN Client				
Frp Setting				
Administration	$\sim$			
Alerts				
Registration				
Configuration Set				
Remote Debug				
System Management				
Download				
Language English 🗸				
Logout				



STONEX

## 4.7.3 Configuration Set

In this page you can download/upload configuration files.

# **SC400A Reference Station**

-									
Summary									
System Information	$\sim$								
System Information									
GPS Status			onfig Files	Save config	_		Restore conf		
Satellites		Sy	stem config	Download	]	Choose File	No file chosen	L	Jpload
Map		Se	rvice config	Download	]	Choose File	No file chosen	l	Jpload
Reference Station	$\sim$		ser config	Download	1	Choose File	No file chosen		Jpload
Reference Station		0	ser comig	Download	J	Choose i lie	INO INE CHOSEN		pload
GNSS Configuration									
Tracking Satellites									
Ntrip Server									
Recording									
Port Configuration									
Network	$\sim$								
Network									
Dynamic DNS									
FTP Server									
NTP Server									
SNMPD									
Firewall									
VPN Client									
Frp Setting									
Administration	$\sim$								
Alerts									
Registration									
Configuration Set									
Remote Debug									
System Management									
Download									
Language English 🗸									
Logout									



## 4.7.4 Remote Debug

Remote debug allows to connect SC400A with Cube-cors. Simply insert the IP of the server where Cube-cors is running and its ports. Further details on Cube-cors manual.

SC400A Referen	ce Station STONEX
Summary	
System Information	
System Information	Remote Debug
GPS Status	Enable O Disable
Satellites	
Map	IP : Port
Reference Station V	
Reference Station	
GNSS Configuration	Submit Reload
Tracking Satellites	
Ntrip Server	
Recording	
Port Configuration	
Network 🗸	
Network	
Dynamic DNS	-
FTP Server	
NTP Server	
SNMPD	
Firewall	
VPN Client	
Frp Setting	
Administration V	
Alerts	
Registration	
Configuration Set	
Remote Debug	
System Management	
Download	
Language <mark>English                                     </mark>	
Logoul	



## 4.7.5 System Management

On this page you can update the receiver firmware, modify the security settings, view the logs. At the bottom you can find some controls to do tests and to reset.

Online upgrade: mainboard/GNSS firmware update and MCU component.

# **SC400A Reference Station**

SCANA Defenomes	Station
SC400A Reference S	Station STONEX
Summary	Opline Upgrade
System Information	Online Upgrade
System Information	1. Upload File
GPS Status	
Satellites	Choose File No file chosen
Map	Upgrade
Reference Station V	obäune
Reference Station	
GNSS Configuration	
Tracking Satellites	
Ntrip Server	
Recording	View Logs
Port Configuration	
Network 🗸	1. APP Log Download View
Network	
Dynamic DNS	2. OS Log Download View
FTP Server	5
NTP Server	3. NET Log Download View
SNMPD	5
Firewall	
VPN Client	
Frp Setting	0it
Administration V	Security
Alerts	Enable Login Authentication
Registration	Enable Login Authentication
Configuration Set	Current User : admin
Remote Debug	
System Management	Old Password :
Download	New Password : Verify New Password Change
Language English 🗸	
Logout	✓ Enable Guest
-	
	New Guest Password : Verify New Password
	Change
	Self Test Restart Device Freset OEM Factory Reset Format Internal Disk
	Net Test



STONEX

#### 4.8 Download

This command is for the manual download of recorded files, it has no subcommands. You can download the files registered locally as a package or perform an FTP push. To check the recorded files just click on the name cell. Individual files can be converted to RINEX on-the-fly clicking on Convert button. Regarding the options of conversion, please refer to Recording page.

## SC400A Reference Station

Summary								
System Information	$\sim$							
System Information								
GPS Status		ļ	Select	Name	Size	Creation Time	Modification Time	Operation
Satellites				INTERNAL	7.803G	-	-	FTP Push Package Delete
Map		[		TF	0B	-	2021-10-04 11:53:44	FTP Push Package Delete
Reference Station	$\sim$	L						_
Reference Station			Select /	All Package	Delete	Selected Prev	1 (1/1) Next	
GNSS Configuration								
Tracking Satellites								
Ntrip Server								
Recording								
Port Configuration								
Network	$\sim$							
Administration	$\sim$							
Alerts								
Registration								
Configuration Set								
Remote Debug								
System Management								
Download								
Language English 🗸								
Logout								

## 4.9 Language and Log Out

Language command allows you to select the language. The available languages are English, Russian, traditional Chinese, simplified Chinese.

Logout command if clicked closes the session.



## 5. Bundles

SC400A is available in standard version with 10Hz as position rate. There is the possibility to upgrade it to 20Hz.

#### Model:

Product Code	Description	
B75-000217	SC400A CORS, GNSS 800 Ch, 10Hz, Wi-Fi, BT	
	Power Adaptor with 3 plugs (US, UK and EU), 15V/2A, 2PIN	



#### List of **Optional** accessories:

Product Code	Description
30-357125	DB9 female-DB9 female
30-350298	Power Cable 2pin, +/- voltage



30-357112	Cable 10m for antenna GNSS (AC-10M)
30-357126	Cable for Choke Ring antenna (30m)
30-357127	Cable for Choke Ring antenna (40m)
30-350243	SA1800, GNSS 3D Choke Ring antenna
30-357128	SA1500, GNSS 2D Choke Ring antenna
30-357135	SA1200 GNSS 3D Choke Ring Antenna
30-357136	SA1000, GNSS Mini Choke Ring Antenna
30-357134	SA65 GNSS Geodetic Antenna



## Appendix 1: Copyrights, warranty, and environmental recycling

### Copyrights and trademarks

© 2021, STONEX® Limited. All rights reserved.

STONEX®, the STONEX® logo, and SC400A CORS receiver are trademarks of STONEX® Limited.

STONEX® Cube-a, STONEX® Cube-Connector, STONEX® Cube-cors are trademarks of STONEX® Limited.

#### **Release Notice**

October 2021 release of the STONEX® SC400A GNSS new model receiver user guide.

The following limited warranties give you specific legal rights. You may have others, which vary from state/jurisdiction to state/jurisdiction.

### **Standard Limited Warranty**

#### Version 2021

The terms and conditions of this Limited Warranty constitute the complete and exclusive warranty agreement between The Customer or Dealer and STONEX<sup>®</sup> for the Product and supersedes any prior agreement or representation made in any STONEX<sup>®</sup> sales document or advice that may be provided to Customer by any STONEX<sup>®</sup> representative in connection with Customer's purchase of the Product. No change to the conditions of this Limited Warranty is valid unless it is made in written form and signed by an authorized STONEX<sup>®</sup> supervisor.

STONEX<sup>®</sup> warrants that its Products:

Are free from defects in materials or workmanship for generally 1 year.

Accessories or specific parts for which different limited warranty period shall apply.

Have been tested/calibrated in proper working status prior to shipment.

The warranty period starts from date of first sale of the instruments. At its sole discretion, under the warranty period, STONEX<sup>®</sup> will repair the product or send parts for replacement at its expense. STONEX<sup>®</sup> agrees to repair or replace the defected instrument within thirty (30) days only if STONEX<sup>®</sup> Europe recognizes that the defects of the instrument are not caused by human factors or no obvious damage to its surface is visible. STONEX<sup>®</sup> warrants any new replaced parts or products are warranted to be free from defects in materials and workmanship for thirty (30) days or for the remainder of the Limited Warranty Period of the Product in which they are installed, whichever is longer. Faulty Parts or Products replaced under this Limited Warranty shall become property of STONEX<sup>®</sup>. All products that have to be repaired have to be returned to our technical representative office location via any delivery company the customer prefers, nevertheless STONEX<sup>®</sup> is not accountable for the unlikely event that the Products gets lost in transit. Any damage inflicted by the customer or by third party after the products has been delivered to the customer is excluded from the limited warranty as well any damage arising from an improper use, from any action or use not provided for in the enclosed user guides and/or manuals.



## Shipping policy

The Customer or the dealer is required to pay for the charges for shipping of fault parts or instruments to STONEX<sup>®</sup> representative office and STONEX<sup>®</sup> is providing the shipping for return. Dealers need to follow STONEX<sup>®</sup> repair/service procedure to achieve a better and prompt service result.

#### Firmware/Software warranty

Stonex does not warrant that operation of Firmware/Software on any instruments will be uninterrupted or error-free, or that functions contained in Firmware/Software will operate to meet your requirements.

Stonex will forward the Software/Firmware Fix to the dealer or customer. Firmware/software Fix means an error correction or other update created to fix a previous firmware version that substantially doesn't conform to the instrument's specification.

### Over Warranty repair(s) policy

Customer shall pay the standard repair fees for any service (whether part replacement or repairs) and performed by STONEX<sup>®</sup> under request and explicit authorization of the customer itself. In this case the customer is charged for return shipment's fees as well.

### Disclaimer and Limitation of Remedy

All other express and implied warranties for this product, including the implied warranties of merchantability and fitness for a particular purpose and/or not infringement of any third party's rights, are hereby disclaimed. Stonex® expressly disclaims all warranties not stated in this limited warranty. Any implied warranties that may be imposed by law are limited in duration to the term of this limited warranty. Some jurisdictions do not allow the exclusion of implied warranties or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to customer. Customer must read and follow all set-up and usage instructions in the applicable user guides and/or manuals enclosed. If customer fails to do so, this product may not function properly and may be damaged. Customer may lose data or sustain personal injuries. Stonex<sup>®</sup>, its affiliates and suppliers do not warrant that operation of this product will be uninterrupted or error free; as do all electronics at times. If this product fails to work as warranted above, customer's sole and exclusive remedy shall be repair or replacement. In no event will Stonex®, its affiliates or suppliers be liable to customer or any third party for any damage in excess of the purchase price of the product. This limitation applies to damages of any kind whatsoever including (1) damage to, or loss or corruption of, customer's records, programs, data or removable storage media, or (2) any direct or indirect damages, lost profits, lost savings or other special, incidental, exemplary or consequential damages, whether for breach of warranty, contract, tort or otherwise, or whether arising out of the use of or inability to use the product and/or the enclosed user guides and/or manuals, even if Stonex, or an authorized Stonex<sup>®</sup> representative, authorized service provider or reseller has been advised of the possibility of such damages or of any claim by any other party. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages for some products, so the exclusions or limitations may not apply to customer. This limited warranty gives customer specific legal rights, and customer may also have other rights which vary from country/state/jurisdiction to country/state.

#### Instruments

Two (2) year on STONEX<sup>®</sup> Products: GNSS receiver: SC400A GNSS Series.



### **Environmental recycling**

The cardboard box, the plastic in the package and the various parts of this product must be recycled and disposed of in accordance with the current legislation of your Country.

## For countries in the European Union (EU)

The disposal of electric and electronic device as solid urban waste is strictly prohibited: they must be collected separately.

Contact Local Authorities to obtain practical information about correct handling of the waste, location, and times of waste collection center. When you buy a new device of ours, you can give back to our dealer a used similar device.

The dumping of these devices at unequipped or unauthorized places may have hazardous effects on health and environment.

The crossed dustbin symbol means that the device must be taken to authorize collection centers and must be handled separately from solid urban waste.



#### For countries outside European Union (EU)

The treatment, recycling, collection, and disposal of electric and electronic devices may vary in accordance with the laws in force in the Country in question.

## **Appendix 2: Safety Recommendations**

### Warnings and Cautions

An absence of specific alerts does not mean that there are no safety risks involved in the use of this equipment.

Always follow the instructions that accompany a Warning or Caution, reported in this.

This information is intended to minimize the risk of personal injury and/or damage to propriety.

Observe safety instructions that are presented in the following form:

**WARNING** - A Warning alerts about risk for health and/or damage to the propriety. A warning identifies the nature of the risk and the extent the possible injury and/or damage. It also describes how to protect yourself and/or the equipment from this risk.

**CAUTION** - A Caution alerts about a possible risk of damage to the equipment and/or loss of data, but no risk for human safety.



### Wireless Module Approval

The receivers use internal wireless modules. Regulations regarding the use of the modem vary greatly from country to country. In some countries, the unit can be used without obtaining an approval license. Other countries require specific approval or auto certification by the set maker.

Before using this instrument, check if authorization to operate the receiver is required in your country. It is the responsibility of the importer to verify if it is necessary a certification or license for the equipment in the country of use.

#### Instrument Approval

Covers technical features of the equipment relatives to electromagnetic emissions that can cause interference and disturbances to other instruments (note like emc compatibility) or generate not correct functionalities of the instrument itself. Approval is granted by the manufacturer of the equipment. Some countries have unique technical requirements for operation in particular frequency bands. To comply with those requirements, Stonex Srl may modified the equipment to be subjected to grant.

Unauthorized modification of the units voids already got approvals, the warranty time and the operational licenses of the instrument.



STONEX<sup>®</sup> SRL

Viale dell'Industria, 53 - 20037 Paderno Dugnano (MI)

Tel: +39 02 78619201

www.stonex.it | info@stonex.it