



SAS310

User Manual

for software version 1.8

Updated on 9/1/2023



Contents

1. Version information	6
2. Installation	7
2.1 Included materials.....	7
2.2 Requirements.....	7
2.3 Connecting the SAS310 to the audio system.....	8
2.4 Connecting the SAS310 to the power outlet.....	8
2.5 Connecting the SAS310 to the network.....	8
3. The configuration interface	10
3.1 Username and password of the configuration interface.....	10
4. Configuration via a server	11
5. Configuring the SAS310	12
5.1 Network settings.....	12
5.2 Audio settings.....	12
5.3 Encoder settings.....	13
5.3.1 Stream settings.....	13
5.3.2 Recording settings.....	15
5.3.3 Download and upload encoder settings.....	15
5.4 System settings and functions.....	16
5.4.1 Time and time server.....	17
5.4.2 Username and password for the configuration interface.....	17
5.4.3 Encoder control over IP.....	17
5.4.4 URL of the configuration server.....	18
5.4.5 Daily reboot.....	18
5.4.6 Automatic shutdown.....	19
5.4.7 URL of the device register.....	19
5.4.8 Device name.....	19
5.4.9 Load the factory default settings.....	19
5.4.10 Format local storage.....	20

5.4.11 Restart the SAS310.....	20
5.4.12 URL of the firmware update server.....	20
5.4.13 Set manual or automatic update.....	20
5.4.14 Manually choose and install firmware.....	20
6. Testing the SAS310	22
7. Viewing the status of the SAS310	23
7.1 The status page.....	23
8. Recording to internal storage	27
8.1 Space on the local storage.....	27
8.2 Relation between stream and recording.....	27
8.3 Start and stop the recording.....	28
8.4 Download and remove recordings.....	28
9. Encoder control via the web configuration interface	29
10. Control the SAS310 via commands	30
11. Switching off the SAS310	32
12. Restoring to factory default settings	33
13. Updating the firmware	34
13.1 Automatic update from an update server.....	34
13.2 Manual update from a firmware update server.....	34
13.3 Manual selection and installation via the configuration interface.....	35
13.4 Update from USB storage.....	35
14. Device register	36
15. Specification	37
16. Streamit support	38
17. Troubleshooting	39
17.1 The LEDs of the network connection do not light up.....	39
17.2 The SAS310 makes a downward sound.....	39
17.3 The recording partition is corrupted.....	40

17.4 There is no audio in the stream.....	40
17.5 The configuration interface of the SAS310 is not available.....	40
17.5.1 Using the on-board DHCP server.....	40

EU Declaration of Conformity

 This product carries the CE-Mark in accordance with the related European Directives. CE marking is the responsibility of Streamit B.V. The Netherlands.

 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC Compliance Statement

 NOTE: This device complies with Part 15 of the FCC limits for Class B digital devices FOR HOME OR OFFICE USE (“home or office” interference requirements are more stringent than “outdoor” requirements). Operation of this device is subject to the following conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

The Streamit internet radio device does not contain any user-serviceable parts. Repairs should be made only by an authorized Streamit service center. Unauthorized repairs or modifications could result in permanent damage to the equipment, and void your warranty and your authority to operate the device under Part 15 regulations.

Disclaimer

This manual has been validated and reviewed for accuracy. The instructions and descriptions it contains are accurate for the Streamit internet radio devices at the time of this manual’s production. However, later Streamit internet radio devices and manuals are subject to change without notice. Streamit assumes no liability for damages incurred directly or indirectly from errors, omissions or discrepancies between the internet radio and the manual.

Understanding of Instructions

 **WARNING:** These are instructions which can cause harm to people or damage to the device if not followed properly. It is important to read and follow these instructions carefully.

 **IMPORTANT:** These instructions are important in order to understand the correct behavior of the device.

Notices about trademarks

- The Lisa family of devices is a registered trademark of Streamit
- Streamit is a registered trademark
- All other trade names that are used in this manual are owned by their respective owners

1 Version information

This manual applies to SAS310 firmware version 1.8.0.

2 Installation

2.1 Included materials

Please check if the following parts are in the box when you receive it. If one or more parts are missing or damaged, please contact your Streamit reseller or sales employee.

- SAS310
- Power adapter
- Behringer UCA222 USB sound capture device (see image below)
- Ethernet cable



2.2 Requirements

For audio streams via the internet, you need the following in addition to the SAS310:

- An internet connection
- A streaming server: This can be the SAS310 itself, or the streaming server of a provider such as [Kerkdienstgemist](#) or [Streampartner](#).

For questions, please contact [Streamit support](#).

2.3 Connecting the SAS310 to the audio system

Connect the Behringer UCA222 to one of the USB ports on the back of the SAS310. Connect the signal from the audio installation to the input ports on the Behringer UCA222.

2.4 Connecting the SAS310 to the power outlet

Plug the power cord into the power outlet and plug the other end of the cord into the SAS310.



Take the following into account when connecting the SAS310 to the power outlet:

- Never use wet hands to plug the power adapter in the mains and never remove the power adapter from the mains with wet hands.
- Do not cut or damage the cord of the power adapter. Do not place heavy objects on the cord. This can cause short-circuit, resulting in electrical shocks or even fire.
- Pulling the cord can damage the wire and/or isolation causing electrical shocks or fire.
- Using power adapters other than the one recommended for your SAS310, can result in overheating and damage your device. This can cause fire, electrical shocks and other hazards. Only use the supplied power adapter.
- Do not use, place, or store the SAS310 in places that are subject to intense sun light or high temperatures. This may discolor and/or deform the SAS310 or its parts. Make sure there is sufficient ventilation around the power adapter and around the SAS310.
- Exposing the SAS310 to situations with rapid changing temperatures can result in condensation (a small amount of water) on the inner and outer surface of your device. To ensure a long lifetime of your SAS310, this should be prevented. In case of such a scenario, wait until you device is 'dry' before you use it again

2.5 Connecting the SAS310 to the network

Connect the included ethernet cable to the LAN1 connection of the SAS310. Connect the other end of the Ethernet cable to the Ethernet connection of the local network, or the ADSL router.



Only the network connection LAN1 is active, make sure that you do not use connection LAN2.

The green LED next to the LAN1 connector should light up continuously when the connection is made. The yellow LED should start to flicker intermittently. If this is not the case, please check [The LEDs of the network connection do not light up](#) for possible causes and solutions. to read what could be the cause.

3 The configuration interface

The SAS310 has a configuration interface that consists of a number of web pages to setup e.g. the stream and recording settings. The configuration interface is accessible by navigating in a browser to the IP address of the SAS310: <http://<SAS310 IP address>>. You can find this IP address in the device register <http://register.streamit.eu/sas> (or the [URL set for the device register](#)). You can click on the IP address directly, it is a link to the web interface of the device (see also [SAS310 register](#)).

If you have problems accessing the web interface of the SAS310, read the instructions in [The configuration interface of the SAS310 is not accessible](#).

3.1 Username and password of the configuration interface

When you access the configuration interface, you will be asked for a user name and password (except for the Status page and Manuals).

The default credentials for the admin user are:

Username streamit

Password lukas

Starting from software version 1.4, part of the SAS310 configuration interface is also available for an operator user. The operator is allowed to manage recordings (download/delete) and control streamer/recorder (start/stop).

The default credentials for the operator user are:

Username operator

Password

! Changing the credentials of the operator user is highly recommended. When no password (default) has been set, the pages Recordings and Controls will be available (with limited rights) without the need to log in.

The credentials can be changed, see [Set username and password for the configuration interface](#).

4 Configuration via a server

During startup, the SAS310 checks the Device configuration URL and retrieves the configuration information (settings) there, if available. The settings that are retrieved from the server, overwrite the settings that are stored locally.

These changes are permanent and the changed settings will be used at following startups, even if no configuration information is retrieved from a server.

! URLs with HTTPS can be used (SSL-secured connections), but this requires officially signed certificates. The use of 'self-signed' certificates is not supported.

It is possible to set up your own configuration server. However, this requires considerable technical know-how. The format in which the configuration must be served to the SAS310 is documented in the SAS310 - Technical Manual.

5 Configuring the SAS310

The SAS310 has a configuration interface that consists of a number of web pages to setup e.g. the stream and recording settings. The configuration interface is accessible by navigating in a browser to the IP address of the SAS310: <http://<SAS310 IP address>>. You can find this IP address in the device register <http://register.streamit.eu/sas> (or the [URL set for the device register](#)). You can click on the IP address directly, it is a link to the web interface of the device (see also [device register](#)).

If you have problems accessing the web interface of the SAS310, read the instructions in [The configuration interface of the SAS310 is not accessible](#).

5.1 Network settings

Network TCP/IP settings	
Configuration	Manual ▼
IP address	10.0.0.250 
Netmask	255.255.255.0
Gateway	
DNS server 1	
DNS server 2	
Local IP address	192.168.10.144
Ethernet MAC address	00:0d:b9:46:75:30

You can configure the IP address of the SAS310 on this page. At the bottom of the page the currently used IP address and the Ethernet MAC address are shown.

We recommend you to have an IP address automatically assigned to the SAS310 (DHCP), this is the default setting of the SAS310. If you decide to give the SAS310 a static IP address, take the network configuration of your router into account!

By clicking on the button 'Save & reboot' the new network settings are saved. Then the SAS310 reboots to activate the new settings.

5.2 Audio settings

Audio configuration	
Input gain (0-30 dB)	0

The only audio setting that can currently be configured, is the input gain. This can be used to amplify a weak input signal. Changing the input gain can be done without restarting the stream, but may take a few seconds to take effect. It is recommended to keep the input gain as low as possible to get the best sound quality.

5.3 Encoder settings

On the 'Encoder' page, the admin user gets to configure the stream and recording settings.

In software earlier than version 1.4, recordings were only possible when streaming was enabled. Starting from version 1.4 it is possible to record without streaming being enabled. Not only does this make a stand-alone recorder application possible, but it is also possible to stop streaming (a part of) an event and still have a recording of it.

! The encoding quality of recordings is still determined by the audio quality settings of stream configuration. For a stand-alone recorder application, you will need to enable streaming mode at least one time, so that the audio quality can be set to the desired value.

5.3.1 Stream settings

Stream configuration	
Streaming mode	Internal icecast-2 ▾
Audio quality (MP3)	24 kbps / 22.05 kHz / 16bit / mono ▾
Stream title	sas310
Mount point	/ sas310
Upstream Port	8730 (do not use ports below 1024)
Enable low delay	<input checked="" type="checkbox"/>
Maximum clients (listeners)	20
Play sound on error	Repeating ▾

Several streaming-related settings can be configured. Which options are displayed, depends on the chosen streaming mode and the available choices for that streaming mode. You will find an overview of the different options with a short explanation.

! Irrelevant options are automatically hidden in the configuration interface of the SAS310. You should therefore always fill in all fields, unless you are sure that you can leave the field empty.

Field	Setting
Streaming mode	Set to <ul style="list-style-type: none"> internal icecast-2: Audio stream is served to listeners directly from the SAS310

Field	Setting
	<ul style="list-style-type: none"> external shoutcast: Audio stream is sent to a SHOUTcast server from which the listeners can retrieve the stream external icecast-2: Audio stream is sent to an Icecast2 server from which the listeners can retrieve the stream disabled
Audio quality (MP3)	Set the bit rate of the stream. The higher the bit rate, higher the quality but also the more bandwidth is needed for listeners
Stream title	Enter a short description of the stream
External stream server	URL of the external streaming server. This is provided by your streaming service provider (not for internal icecast-2 server).
Mount point	The name of the stream, this will be part of the URL (not for SHOUTcast server)
Upstream port	<p>Port to which the audio is sent. This is provided by your streaming service provider.</p> <p>! For internal icecast-2 server this port is used by the listeners to retrieve the stream, and then ports under 1024 cannot be used</p>
Maximum clients	The maximum number of listeners that can listen to this stream. This is important if the bandwidth to the internet is limited. (For internal icecast-2 server only)
Password	This is provided by your streaming service provider (not for internal icecast-2 server).
Play sound on error	Set how often the SAS310 makes a downward series of tones when internet- or server problems occur: Never, once, or every ten seconds.

5.3.2 Recording settings

The SAS310 can make a recording to its internal storage. This is called "local recording". How local recording works and which requirements apply, is documented in [Recording to internal storage](#). Here, the corresponding settings interface is discussed.

Local recording options	
Local recording	Enabled ▾
Remove oldest recording when storage is full	<input checked="" type="checkbox"/>

Local recording	<p>Select if a recording of the live stream to local storage should be made.</p> <p>The recording starts as soon as the stream starts. The stream will be restarted if the stream is already running when this setting is changed.</p>
Remove oldest recording when storage is full	<p>Set whether the old recordings must be removed when space for recording runs out on the local storage. The oldest recordings will be removed first.</p>

5.3.3 Download and upload encoder settings

To save and quickly restore encoder settings, these settings can be downloaded and uploaded as XML file. This option is presented on the encoder page when a stream has been configured:

XML encoder settings file		
Download encoder settings	Download encoder settings in an XML file here .	
Upload encoder settings	<input type="button" value="Choose File"/> No file chosen	<input type="button" value="upload"/>

Click on the link 'here' to download the encoder settings. Note that settings on the other pages are not included in the downloaded file.

Click on the 'Browse' button and navigate to the XML file with settings that you want to apply and click 'open'. Click on 'upload' to load the settings. These settings are loaded now, click on 'Save' to save and apply these settings. When both stream and recording settings change, you must click 'Save' for each component.

5.4 System settings and functions

Date and time settings		
Date and time	Fri 15/05/2020 15:38:38 (CEST)	<input type="button" value="synchronize"/>
Time server	<input type="text" value="nl.pool.ntp.org"/>	<input type="button" value="set"/>

Set admin username/password		
Username (min. 6 chars)	<input type="text" value="streamit"/>	
Password (min. 5 chars)	<input type="password"/>	
Repeat password	<input type="password"/>	<input type="button" value="set"/>

Set operator username/password		
Username (min. 6 chars)	<input type="text" value="operator"/>	
Password (min. 5 chars)	<input type="password" value="••••"/> (leave blank to clear)	<input type="button" value="set"/>

IP control settings		
TCP Server	<input type="text" value="Enabled"/>	
Listening Port	<input type="text" value="1234"/> (in the range 1024-49151)	
Restrict to following client	<input type="text" value="192.168.10.74"/> (leave blank for subnet)	<input type="button" value="set"/>

Miscellaneous settings		
Device configuration URL	<input type="text"/>	<input type="button" value="set"/>
Daily reboot time	<input type="text"/> (e.g., 2:45, leave blank to avoid)	<input type="button" value="set"/>
Automatic shutdown	<input type="text"/> mins (leave blank to avoid).	<input type="button" value="set"/>
Device register URL	<input type="text" value="http://register.streamit.eu/sas"/>	<input type="button" value="set"/>
Device name	<input type="text"/> (shown in device register)	<input type="button" value="set"/>

Special functions		
Factory defaults	load factory default settings	<input type="button" value="load"/>
Format storage	removes all recordings	<input type="button" value="format"/>
Reboot system	restarts the unit	<input type="button" value="reboot"/>

Update firmware		
Firmware update URL	<input type="text" value="http://www.streamit.eu/updates/sas310/update.ir"/>	<input type="button" value="set"/>
Firmware update	<input type="text" value="On manual trigger"/>	<input type="button" value="set"/>
Manual selection	<input type="button" value="Choose File"/> No file chosen	<input type="button" value="upload"/>

5.4.1 Time and time server

The time on the SAS310 can be changed by clicking 'synchronize' under the heading 'Date and Time Settings'.

The URL of the time server with which the SAS310 will be synchronized can be given in the field 'Time Server'. Click on 'set' to make this setting active.

The SAS310 is always configured for the time zone 'Europe/Amsterdam'.

5.4.2 Username and password for the configuration interface

The configuration interface of the SAS310 is accessible for two type of authenticated users: admin and operator.

Only the admin user is allowed to make actual configuration changes. The operator user is granted limited access to functionality on Recordings page (download and delete recordings) and Controls page (start/stop streamer and recorder).

You can change the admin user credentials for the configuration interface by entering the desired username and password under 'Set admin username/password'.

You can change the operator user credentials for the configuration interface by entering the desired username and password under 'Set operator username/password'.

The default setting can be found at [Username and password of the configuration interface](#).

The SAS310 must reboot to activate the new username and password.

5.4.3 Encoder control over IP

To allow [control of the SAS310 via commands](#), you can enable the IP control server and configure the TCP port where the server will be listening. Eventually, restrictions can be applied with regard to which client connection is allowed. By default, only connection from the local (SAS310) subnet is allowed.

! Only one client connection at a time will be allowed. Make sure to implement clean disconnection on your your client application (e.g. using 'quit' command), to ensure that a new connection always succeeds quickly.

The field "Restrict to following client" accepts the following formats for ip address (IPv4 and IPv6) and network subnet:

empty	Local subnet only
192.168.10.201	Specific IP address only

192.168.10.201/255.25.5.255.0	Subnet of specific IP address only
192.168.10.201/24	Subnet of specific IP address only
0.0.0.0	Any IPv4 address
::/128	Any IPv6 address

A complete list of supported commands is available to [control of the SAS310 via commands](#)

5.4.4 URL of the configuration server

By default the SAS310 uses only the locally stored configuration information (settings), leaving the 'Device configuration URL' empty. If you enter a URL in this field, the SAS310 will retrieve configuration information (settings) during startup from the indicated location.

! URLs with HTTPS can be used (SSL-secured connections), but this requires officially signed certificates. The use of 'self-signed' certificates is not supported.

It is possible to set up your own configuration server. However, this requires considerable technical know-how. The format in which the configuration information must be served, is documented in the SAS310 - Technical Manual.

5.4.5 Daily reboot

When using the SAS310 for a long time, it is recommended to reboot the SAS310 once every 24 hours. You can do this automatically by entering a time in the field 'Daily reboot time'. The restart of the SAS310 takes approximately 1 minute. Give the time in the format hh:mm and leave the field empty if you do not want the SAS310 to reboot each day at the same time.

5.4.6 Automatic shutdown

The SAS310 can be configured to automatically switch off after a user-set period of time. This can be used if, for example, the SAS310 is sometimes accidentally switched on or to avoid considerable streaming costs. The time is set in minutes and countdown starts after the SAS310 has fully started. Leave the field empty if you do not want the SAS310 to shutdown automatically after a given period of time.

5.4.7 URL of the device register

By default the SAS310 sends information about itself to the [Streamit device register](#), leaving the 'Device register URL' empty. If you enter a URL in this field, the SAS310 will send the information to the indicated location.

! URLs with HTTPS can be used (SSL-secured connections), but this requires officially signed certificates. The use of 'self-signed' certificates is not supported.

It is possible to set up your own device register. However, this requires considerable technical know-how. The format in which the SAS310 sends the information about itself, is documented in the SAS310 - Technical Manual.

5.4.8 Device name

You can give each SAS310 a unique, self-selected name, to easily recognize the SAS310 in the Streamit device register (<http://register.streamit.eu>), or the device register that is set by the [Device register URL](#).

This name is sent to the device register as soon as you click on 'set' and each time the SAS310 starts up.

If no name is set, but the SAS310 streams to a predefined platform, the stream name will be sent as the device name.

5.4.9 Load the factory default settings

The SAS310 factory default settings can be loaded by clicking the 'Load' button under 'General settings'.

The factory default settings are loaded now, but not yet saved. If you restart the SAS310 without saving settings, nothing has changed and the old settings will still be active.

The settings are saved by clicking 'Save' on one of the other pages. The SAS310 must reboot to activate the new settings.

5.4.10 Format local storage

The local storage can be formatted by clicking the 'format' button under 'Special Functions'.

! By accepting to format the recordings partition, you accept that all recordings are destroyed.

5.4.11 Restart the SAS310

You can restart the SAS310 by clicking 'reboot' under 'Special Functions'.

5.4.12 URL of the firmware update server

By default the SAS310 retrieves information about firmware updates from the Streamit firmware update server. If you enter a URL in the field 'Firmware update URL', the SAS310 will retrieve information about firmware updates and the firmware update itself from the indicated location.

! URLs with HTTPS can be used (SSL-secured connections), but this requires officially signed certificates. The use of 'self-signed' certificates is not supported.

It is possible to set up your own firmware update server. However, this requires considerable technical know-how. The format of the firmware update files and their respective locations are documented in the SAS310 - Technical Manual.

5.4.13 Set manual or automatic update

A firmware update by default always requires user action. Via the page 'System' it is possible to configure that the firmware is updated automatically, when there is newer firmware on the update server than the firmware that runs on the SAS310. If you want this, you need to change the setting 'Firmware update' to 'Automatic'. Leave this setting to 'On manual trigger', if you always want to make a decision whether or not to update the SAS310 to the version that is available on the firmware update server.

! The firmware update is executed only if the firmware on the server is newer than the firmware on the SAS310

It is possible to set up your own firmware update server, see the section [URL of the firmware update server](#).

5.4.14 Manually choose and install firmware

Take the following steps to manually select and install firmware on the SAS310:

- On the page 'Misc' select 'Choose File' under the heading 'Update firmware'

- Navigate to the firmware that you received from Streamit, or which you downloaded from the Streamit website and click 'open'
- Click on 'upload' to load and execute the firmware on the SAS310

The SAS310 will install the new firmware and reboot. You are automatically redirected to the Streamit [device register](#).

- ! Do not switch off the SAS310 during firmware update, this process must not be interrupted

6 Testing the SAS310

To test the SAS310, you must first plug it in. Then, while on the same local network as the SAS310, go to the Streamit device register (<http://register.streamit.eu/sas>) using a PC or tablet. The SAS310 should be listed there after at most one minute. If the SAS310 does not appear in the device register, the [The configuration interface of the SAS310 is not available](#) article will provide alternatives to solve the network configuration.

Next, connect an audio signal into the Behringer UCA222's audio input as described in [Connecting the SAS310 to the audio system](#). Then, configure a stream as described in [Stream settings](#). The configured stream should appear in the web interface of the remote streaming server or be playable from the local network, depending on the configuration.

7 Viewing the status of the SAS310

There are three LEDs on the front of the SAS310:

	Left: Power	Middle: Streaming	Right: Recording
On	SAS310 is powered on	Stream running normally	SAS310 makes a recording
Off	SAS310 is powered off	No stream configured	Recording not enabled
Blinking		Error: Stream not running normally	Recording stopped, or there is a problem with the recording

If one of the LEDs is blinking, it is recommended that you access the [status page of the configuration interface](#) to find out the cause of the problem.

7.1 The status page

On the status page there is a table for the global status, stream and recording information as well as IP control server information.

This information is refreshed every few seconds.

Overall status	
Ethernet MAC address	00:0d:b9:46:78:64
Local IP address	192.168.10.144
Uptime	2 days 04:12:32
KiloBytes sent	3633.2
CPU load	6 %
CPU temperature	52°C
Software version	1.3.2

Stream info	
Status	Running (Encoder running; Internal server running)
Streaming mode	Internal icecast-2
Audio input	Behringer UCA222 (USB)
Stream title	sas310
Audio quality (MP3)	64 kbps / 44.1 kHz / 16bit / mono
Stream URL	http://192.168.10.144:8000/sas310

Local recording info	
Status	Recording
Time left	50 hours and 44 minutes
Free space	1427MB
Total space	11365MB

IP control server info	
Status	Enabled (waiting for connection)
Listening port	1234
Client restriction	192.168.10.74

You can translate the overall status information as follows:

Field	Meaning
Ethernet MAC address	Physical address of the ethernet interface of the SAS310
Local IP address	Address the SAS310 has in the local network
Uptime	This indicates for how long the SAS310 is on already
KiloBytes sent	Amount of bytes sent to the network
CPU load	The load of the processor of the SAS310 at that moment

Field	Meaning
CPU temperature	The temperature of the processor of the SAS310 at that moment
Software Version	Version of the current firmware

The stream info table displays the current status and configuration of the streamer. When the streamer is disabled, some of the fields will not be shown.

Field	Meaning
Status	This shows if the encoder is functioning well (text is black) or not (text is red)
Streaming mode	The streaming method and protocol being used
Audio input	The currently detected input device, an error will be shown if it is not present
Stream title	The name that is given to the stream
Configuration	The settings for the audio and video part of the stream
Stream URL	Address at which the stream can be listened to on a locally connected PC. When clicking this link, the media player on your PC should start, if installed. Our preferred media player is VLC, downloadable for free at http://www.videolan.org/vlc .

For the recording to local storage, the following information is shown:

Field	Meaning
Status	Status of the recording
Time left	Space on the local storage that is still available for recording, presented in hours and minutes. This depends on the bit rate that is configured for the stream. Higher bit rates result in less recording time available on the local storage.

Field	Meaning
Free space	Free space on the local storage, in megabytes
Total space	Total size of the local storage, in megabytes

The information on the current status and configuration of the IP control server follows:

Field	Meaning
Status	This shows whether the IP control server is enabled and whether a client is connected.
Listening port	The TCP port number on which the IP control server is running
Client restriction	The client restriction rule that applies

8 Recording to internal storage

The SAS310 can make a recording to its internal storage. This is called "local recording".

To make recordings of the encoded audio, the following applies:

- There must be sufficient [space on the local storage](#)
- A stream must have been configured, although it does not have to be enabled or running.
- The recording has the same quality as determined in the stream configuration.

The requirements for space on the local storage, the stream and the starting and stopping are elaborated in the following sections.

8.1 Space on the local storage

To make a recording, sufficient space must be available on the local storage. At the start of the recording, there must be room for at least 5 minutes of recording. If less space is available, the recording will not start.

When space runs out during a recording and there is room for less than 5 minutes of recording, a warning signal is sounded.

When space runs out during a recording and there is room for less than 1 minute of recording, a warning signal is sounded and the recording is stopped.

You can configure the SAS310 to [remove old recordings](#) when space for recording runs out on the local storage.

8.2 Relation between stream and recording

Stream and recording both make use of the same encoder (configuration). As a result, there is a relation between the two in the sense that interruptions of the stream and the recording affect each other:

- If the stream is interrupted/stopped, the current recording stops and a new recording is started
- If the recording starts while the stream is running, the stream is restarted
- If the recording stops while the stream is running, the stream is restarted

! Also when the recording stops because the local storage is full, the stream is restarted and therefore briefly interrupted

8.3 Start and stop the recording

Starting and stopping the recording is possible as follows:

- Using a browser via the configuration interface (see [Encoder control via the configuration interface](#)).
- From a custom control application that implements [encoder control over IP](#) via commands.
- At startup of the SAS310 the recording can start automatically (see also [Recording settings](#)). It is not a problem if the SAS310 is still recording when it is turned off, the recording will still be saved.

! There is a very small chance that a recording gets corrupted when the power is removed from the SAS310 (see [Recording to internal storage](#)).

8.4 Download and remove recordings

In the configuration interface the page 'Recordings' shows the files on the local storage. When this page is viewed using a web browser, the recordings are shown as links. These links can be clicked to download the recordings from the local storage.

Next to the recordings a trash can icon is shown. This can be used to remove recordings from the local storage.

To download the current recording, it has to be stopped first. This is indicated and conveniently made possible on the respective page.

Files on local storage		
	rec_2020-05-25_151128.mp3	13 min.
	rec_2020-05-18_163815.mp3	41 min.
	rec_2020-05-18_162947.mp3	3 min.
	rec_2020-05-18_134551.mp3	145 min.
	rec_2020-05-15_185243.mp3	3918 min.
	rec_2020-05-13_133834.mp3	234 min.

9 Encoder control via the web configuration interface

When the SAS310 powers up, it will automatically start streaming and/or recording based on the stream and local recording configuration. Sometimes though, it might be useful to stop the streamer/recorder (temporarily) without changing the configuration.

The Controls page allows you basic (start/stop) control over the SAS310 components (streamer and recorder) and is accessible also for the operator.

Encoder control		
Streamer	Running (Encoder running; Internal server running)	<input type="button" value="Stop"/>
Recorder	Not recording	<input type="button" value="Start"/>

The Start/Stop action buttons are only displayed when the specific actions are allowed, based on configuration and status of the component.

[Encoder control over IP](#) is also available for those who are looking to build a custom control application.

10 Control the SAS310 via commands

The components of the SAS310 (audio streamer and recorder) as well as the SAS310 itself can be controlled via commands. Once connected to the IP control server running on the SAS310, the following commands are available:

	start	stop	status	freespace	reboot
streamer	✓	✓	✓		
recorder	✓	✓	✓		
system				✓	✓
quit					

Check [encoder control over IP](#) for information on configuring the IP control server.

Examples of sending commands and receiving responses

Commands are simply sent to the SAS310 as string with a terminating newline (`\n`) over the TCP connection. The responses by the SAS310 will be the command parsing result (OK or ERROR) followed by `\r\n` (carriage return, newline) and the command processing result.

The following examples aim to clarify how the commands are used. From these examples the use of the other commands can be derived.

Get the recorder status

Command to the SAS310 `recorder status`

Reply by the SAS310 `OK\r\nNot recording`

(Re-)Start the streamer

Command to the SAS310 `streamer start`

Reply by the SAS310 `OK\r\nRunning`

Free space available for local recordings

Command to the SAS310 `system freespace`

Reply by the SAS310 OK\r\n6493 MB

Command not supported

Command to the SAS310 sas310 status

Reply by the SAS310 ERROR\r\nUnknown commands

Client application disconnect

Command to the SAS310 quit

Reply by the SAS310 OK\r\nBye

11 Switching off the SAS310

The SAS310 can be turned off by unplugging the power cord or using a timer or a central power switch, for example as part of an installation that is switched on and off with a single switch.

There is also the software option to [automatically shutdown](#) the SAS310, after it has run for a user-set period of time.

12 Restoring to factory default settings

It is possible to restore the factory default settings without having access to the web interface of the SAS310. This can be done as follows:

- Place a file named `reset` or `reset.txt` on the USB storage (it does not matter what is in the file, but the file will be removed after loading the factory default settings)
- Insert the USB storage into one of the SAS310 USB ports
- Switch on the SAS310
- Wait until you hear 3 short beeps, the SAS310 has now loaded the factory default settings

! Only USB 3.0 sticks/disks (blue color) are supported

! If the files `reset` and `reset.txt` are both present on the USB storage, both are removed.

! The factory default settings are loaded now, but not yet saved. If you restart the SAS310 without saving settings, nothing has changed and the old settings will still be active.

When you no longer have access to the SAS310, you can also follow the steps as described in [The configuration interface of the SAS310 is not accessible](#).

13 Updating the firmware

There are several methods to update the firmware on the SAS310:

- [Automatic update from a firmware update server](#)
- [Manual update from a firmware update server](#)
- [Manual selection and installation via the configuration interface](#)
- [From USB storage](#)

13.1 Automatic update from an update server

A firmware update by default always requires user action. Via the page 'System' it is possible to configure that the firmware is updated automatically, when there is newer firmware on the update server than the firmware that runs on the SAS310. If you want this, you need to change the setting 'Firmware update' to 'Automatic'. Leave this setting to 'On manual trigger', if you always want to make a decision whether or not to update the SAS310 to the version that is available on the firmware update server.



The firmware update is executed only if the firmware on the server is newer than the firmware on the SAS310

It is possible to set up your own firmware update server, see the section [URL of the firmware update server](#).

13.2 Manual update from a firmware update server

When new firmware is available on the update server, a message is shown in the configuration interface:



New software (1.5.1) available [click here to install](#)

Click on the link to start the installation. The SAS310 will download and install the new firmware (this requires a functional internet connection). After installation, the SAS310 will reboot. You are automatically redirected to the Streamit [device register](#).



Do not switch off the SAS310 during firmware update, this process must not be interrupted

13.3 Manual selection and installation via the configuration interface

The option to manually select and install a firmware update file is only intended to install a so-called beta version, or when the SAS310 does not have a functional internet connection.

Take the following steps to manually select and install firmware on the SAS310:

- On the page 'System' select 'Choose File' under the heading 'Update firmware'
- Navigate to the firmware that you received from Streamit, or which you downloaded from the Streamit website and click 'open'
- Click on 'upload' to load and execute the firmware on the SAS310

The SAS310 will install the new firmware and reboot. You are automatically redirected to the Streamit [device register](#).

- ! Do not switch off the SAS310 during firmware update, this process must not be interrupted

13.4 Update from USB storage

The option to install a firmware update from USB storage is only intended to install a so-called beta version, or when the SAS310 does not have a functional internet connection.

Take the following steps to install a firmware update from USB storage:

- Copy the firmware that you received from Streamit, or which you downloaded from the Streamit website, to the root folder of the USB storage
- Connect the USB storage to the SAS310
- (Re)start the SAS310

The SAS310 will find the firmware automatically during startup and install the update immediately. After an automatic reboot the SAS310 is updated.

Take note of the following:

- Connect only 1 USB storage device to the SAS310 at any time. A second USB storage device will not be detected.
- Do not change the name of the firmware update file
- Place only 1 firmware update file on the USB storage. If more than 1 firmware update file is present on the USB storage, the SAS310 will not update.

14 Device register

If you switch on the SAS310, it will report to the Streamit device register, <http://register.streamit.eu/sas>, or the device register that is set by the [Device register URL](#).

The Streamit SAS310 register appears as shown here and has the information described in the table below.



Refresh every seconds | [Login](#)

Registered devices for 88.159.23.8

Last refreshed at 09:48:55 (Amsterdam local time)

Type	Name	Local IP address	MAC address	Firmware version	Image version	Last update
SAS310		192.168.10.144	00:0D:B9:46:75:30	0.0.1 build 28	1	less than a minute ago

Field	Meaning
Type	This shows the device type. This should be SAS310
Name	Name as set on the 'Misc' page of the configuration interface (see Device name)
Local IP address	The local IP address of the SAS310. You can click on this link to navigate with a browser to the configuration interface of the SAS310
MAC address	Address of the physical Ethernet interface of the SAS310
Firmware version	The firmware version of the SAS310, compare this to the version of this manual
Image version	Version number of the core of the SAS310
Last update	The moment at which the SAS310 sent this information, which is a few seconds after switching on the SAS310

By default the SAS310 register will show only devices that have registered in the past 24 hours. If the SAS310 is on for a longer period of time, click on the button 'Show registered anytime' to see devices that have registered any time in the past.

15 Specification

General

Audio encoder	Stereo MP3
Sample frequency	11 - 44.1Khz
Bit rate (max)	256kbps
Ethernet controller	100/1000 Mbps
Power adapter	100 - 240VAC/12Vdc - 2A
Configuration interface	English

16 Streamit support

With this manual we have tried to make the working of the SAS310 as clear as possible. We can imagine, however, that you may come across a question or problem that is not covered. In that case we recommend to check if there is information on this topic on the Streamit website:

<https://www.streamit.eu>.

If this does not provide an answer, we would like to ask you to contact the person from whom you bought or received the SAS310. Streamit can only provide support (through telephone or email) to customers who bought the SAS310 directly from Streamit.

In addition we provide free support via the support page on our website <https://www.streamit.eu/support>.

We appreciate your opinion on this product and your tips for improvement. So, feel free to send us an email: support@streamit.eu.

17 Troubleshooting

In this section you will find suggestions to solve several different potential problems. We recommend you to read this section carefully before contacting [Streamit support](#).

17.1 The LEDs of the network connection do not light up

Potential cause	Solution
The SAS310 is not receiving power	Verify that it is plugged in to the power output
The network cable is not attached to a working network connection on the other side	Try if the network connection works via the cable if you connect the network cable with a PC or laptop

17.2 The SAS310 makes a downward sound

Potential cause	Solution
The SAS310 is not connected to the network	Connect the SAS310 to the network with a network cable in LAN1
The network cable is connected to the wrong LAN connector	Connect the SAS310 to the network with a network cable in LAN1
The stream settings of the SAS310 are incorrect	Check the stream settings of the SAS310 (see Stream settings)
The recordings partition is corrupted	Download all recordings that you would like to have a copy of and then format the local storage

17.3 The recording partition is corrupted

There is a very small chance that a recording gets corrupted. To the best of our knowledge, this could only happen when the power is removed while the SAS310 is recording.

When a single recording were to get corrupted, you might see a 'strange' file name in the list of files on local storage. Chances are that you will not be able to delete the file in question or to download this file. If this situation is detected, we highly recommend that you download the recordings you would like to keep and [format the local storage](#).

In some cases the corruption can have more serious consequences, when writing to the recording partition is no longer possible. Due to the relation between stream and recording, the SAS310 will also not be able to stream. Should this occur, then the following steps should be followed:

- Start by disable recording, to allow the streaming functionality to work
- Download the recording you would like to keep
- [Format local storage](#)

17.4 There is no audio in the stream

Ensure the audio signal is connected to the "Input" connectors on the Behringer UCA222.

Verify, for instance by using the "Monitor" switch on the Behringer UCA222 and a set of headphones, that an audio signal is coming in.

17.5 The configuration interface of the SAS310 is not available

There is a number of potential causes, for example the SAS310 may have a static IP address which is not valid or configured incorrectly.

The best method to regain access to the configuration interface of the SAS310 via a browser is to [use the on-board DHCP server on the second LAN port to connect to the SAS310 directly](#).

You can also [reset the SAS310 to the factory default settings](#) if this does not work.

17.5.1 Using the on-board DHCP server

The SAS310 has a DHCP server on board which is coupled to the LAN2 connector. You can use this by connecting an Ethernet cable to the LAN2 connection on the SAS310 and putting the other end of the network cable directly in your PC (most modern operating systems can handle this). Make sure that your PC is configured for DHCP and power up the SAS310. Your PC will get a network address assigned by the SAS310.

Start the browser on your PC and enter the URL **http://192.168.254.1/** to access the configuration interface of the SAS310. It may take up to 5 minutes before the configuration interface becomes available, the SAS310 will play a sound when when ready.

If your PC does not receive a network address from the SAS310 with the cable directly between the SAS310 and your PC, then connect both your PC and the SAS310 to 1 switch. Try the URL <http://192.168.254.1/> again in the browser of your PC. Note: other devices on the same switch may also get a network address assigned by the SAS310.

! If the network to which the SAS310 is connected via the LAN1 connection also starts with 192.168.254, then the SAS310 will automatically switch to 192.168.1. The URL for the configuration interface of the SAS310 will then be <http://192.168.1.1/>

! Do **not** connect the LAN2 connection of the SAS310 to a network with a DHCP server. This will lead to network problems, because the DHCP server on the SAS310 may also assign network addresses to other devices on the network.

