
Stream-IF Streaming and USB Interface

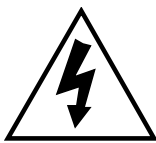
USER MANUAL

PLAYBACK
DESIGNS

INFORMATION TO THE USER

- Read and follow these instructions and keep this manual in a safe place.
- Do not use this apparatus near water
- Do not install near any heat sources such as radiators, heaters, or other apparatus (including pre-amplifiers and amplifiers) that produce heat.
- Do not install this apparatus in a confined space such as book cases or closed cabinets.
- Unplug this apparatus from the mains during lightning storms or when unused for long periods of time.
- Alteration or modification carried out without appropriate approval may invalidate the user's right to operate the equipment

CAUTION



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARRANTY

Playback Designs warrants the Stream-IF product against defects in material and workmanship under normal use and service for a period of time specified by the product's serial number from the date of first delivery to the owner. The warranty time period is for 30 days. If within the first 30 days of ownership you register your Playback Designs product, by sending us a copy of your sales receipt, your name, address, city, state, zip code, phone number, email address and your dealer's store name, we will extend the warranty to 3 years.

Playback Designs will pay for return shipping charges (domestically) back to the owner when the product is sent to Playback Designs within the first 30 days after purchase and the fault can be confirmed by Playback Designs. Otherwise, owner will be responsible for all shipping charges to and from Playback Designs. International customers must deal with their local dealer or distributor.

For all warranty claims, a copy of the original invoice must accompany the product. Opening the product or modifying it in any way by the owner, including but not limited to cryogenic treatment, will void any warranty.

Please contact Playback Designs for instructions before shipping any product to Playback Designs.

Playback Designs products are sold worldwide through authorized dealers with restricted territories. If any Playback Designs product is purchased from non-authorized dealers or from a dealer selling outside his / her authorized territory all warranties will be void.

If you purchased this product from a dealer please take a moment and send us an email to info@playbackdesigns.com so we can register you for warranty. If this product has been shipped to you directly from Playback Designs you are automatically registered.

BEFORE USING THE PRODUCT

- What is in the box: Stream-IF interface system
Power supply (100V - 240V)
USB cable
PLINK optical cable
User manual
- Registration: If you purchased this product from a dealer please take a moment and send us an email to info@playbackdesigns.com so we can register you for the warranty.
- Installation: Do not place the interface over an amplifier or any other equipment that generates heat.

ACKNOWLEDGEMENTS



CONCEPT OF THE STREAM-IF AND THE PLINK INTERFACES

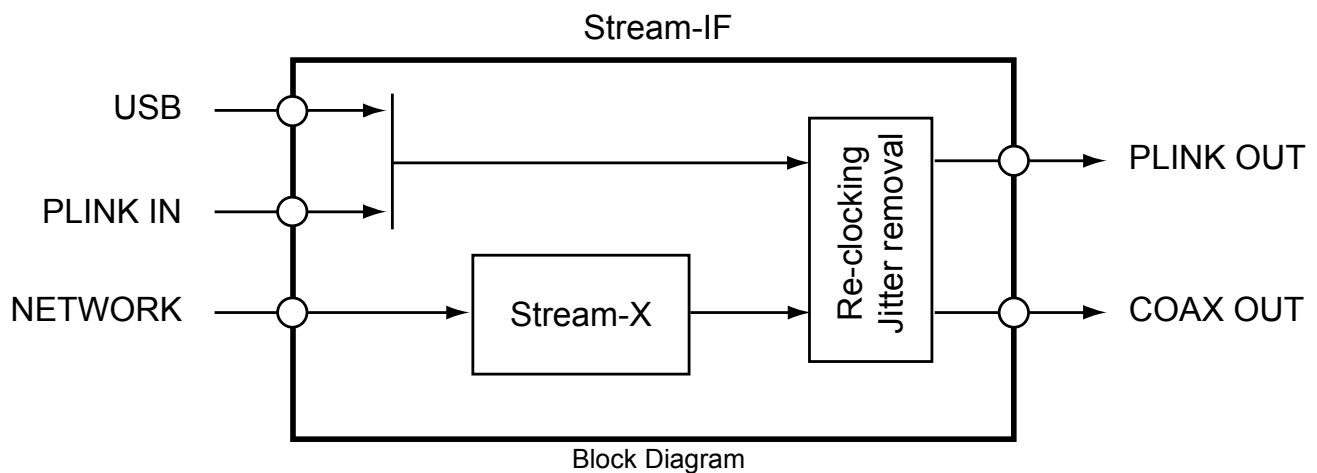
The Stream-IF provides streaming connections from internet, network attached storage and USB sources (computers, servers etc.), carefully removes any incoming jitter by Playback Designs' proprietary clocking and buffering system and then encodes all data natively to either the standard Coax output or the Playback Designs proprietary PLINK output. PLINK is a high quality fiber optical link used on most Playback Designs equipment and natively supports all formats of PCM and DSD. Because its media is fiber optical it separates the sensitive circuitry in your Playback Designs DAC from the generally "noisy" digital sources with high clock jitter. This separation can result in a dramatic sonic improvement when compared to a direct connection with the DAC via for instance USB.

The first version of the PLINK interface was launched more than 15 years ago and supported DSD up to 5.6MHz. This version is called "Classic" and is implemented in the 5-series products and IPS-3 (that have not been upgraded yet). As technology never sits still DSD has been expanded to 11.2MHz several years ago. Accordingly we also expanded the PLINK format and called it "Sonoma" reminiscent of its origin in the professional recording tool for DSD (Sonoma workstation) that was developed by the founder of Playback Designs during the development of the SACD and DSD formats.

PLINK does not use the same media as TosLink, but it is based on a much higher quality and lower jitter media that is used for very high bandwidth communication links where receivers require an extremely low jitter signal for reliable decoding. For PLINK we use a much lower bandwidth protocol than the specified limit of the media to further increase robustness against jitter.

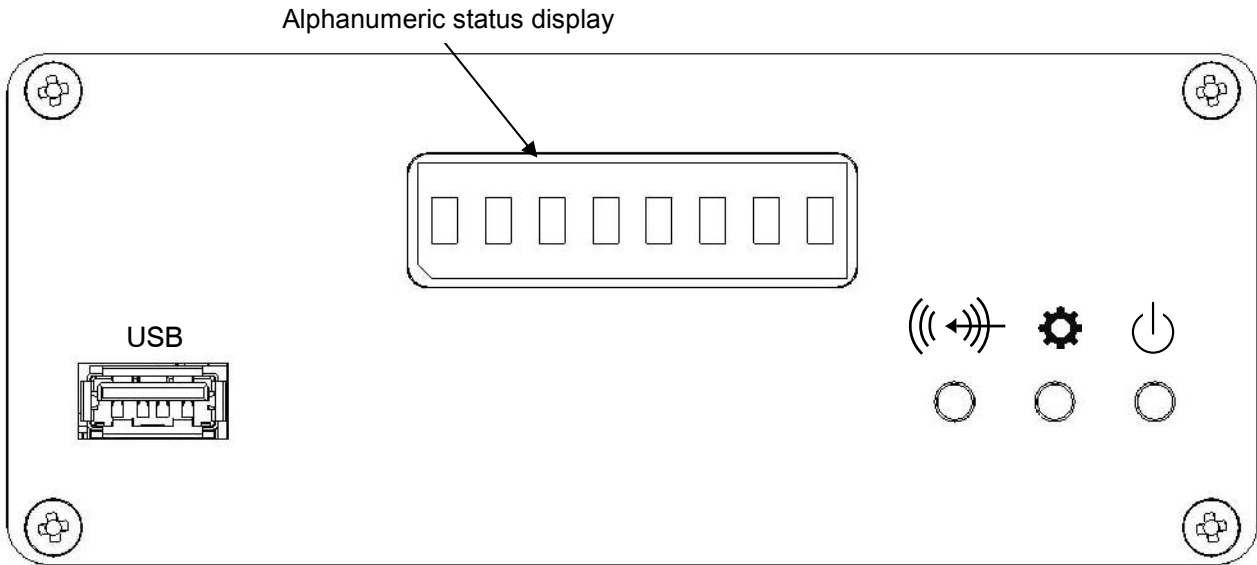
The Stream-IF interface understands both formats, "Classic" and "Sonoma" (selectable in settings menu) and has three inputs:

1. USB for PCM up to 384kHz and native DSD up to 11.2MHz
2. Streaming from network / internet. Various sources are supported such as network attached storage (NAS), streaming services such as Tidal, Qobuz, Deezer, vTuner, Roon networks, DLNA based networks. This input uses the same Stream-X module that can be used as an internal option in the Dream Series Transports and Players.
3. PLINK input from other Playback Designs equipment. Used in connection with support for recording through this device.



Since the Coax interface standard is limited to max. 192kHz for PCM and single DSD, any audio passing through the Stream-IF at higher sample rates is down-converted with our proprietary high resolution algorithm to 176.4 / 192kHz for PCM and single rate DSD via DoP for DSD before sent out the Coax output.

FRONT PANEL FUNCTIONS



Buttons:



Settings menu. Each time you press this button you cycle through the entire menu:

```

normal display
↓
PLINK output format
↓
PLINK input format
↓
software version
↓
normal display
    
```

While in settings menu, the display flashes and the standby button can be used to toggle the setting for each menu item. When in normal operation the display does not flash.

The choices for the PLINK formats are: Classic or Sonoma. PLINK input and output can be set individually by pressing the standby button while the display is in settings mode (flashing).

The Classic format is used for the 5-series products and also the IPS-3 if it hasn't been upgraded yet.

The Sonoma format is used on all newer products from Playback Designs.



Input selection cycles through three input choices:

```

USB
↓
Stream-X
↓
PLINK inputs
    
```

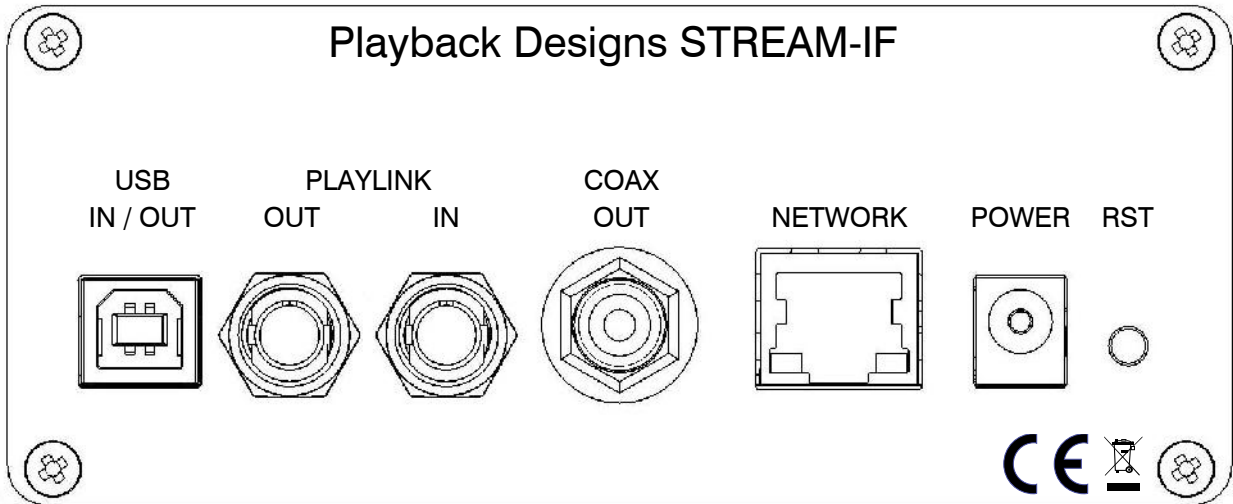


Standby power on / off during normal operation. When in settings menu this button is used to toggle individual settings.

Connector: USB

Used by the Stream-X module to play from USB sticks (USB drives are not supported)

CONNECTIONS



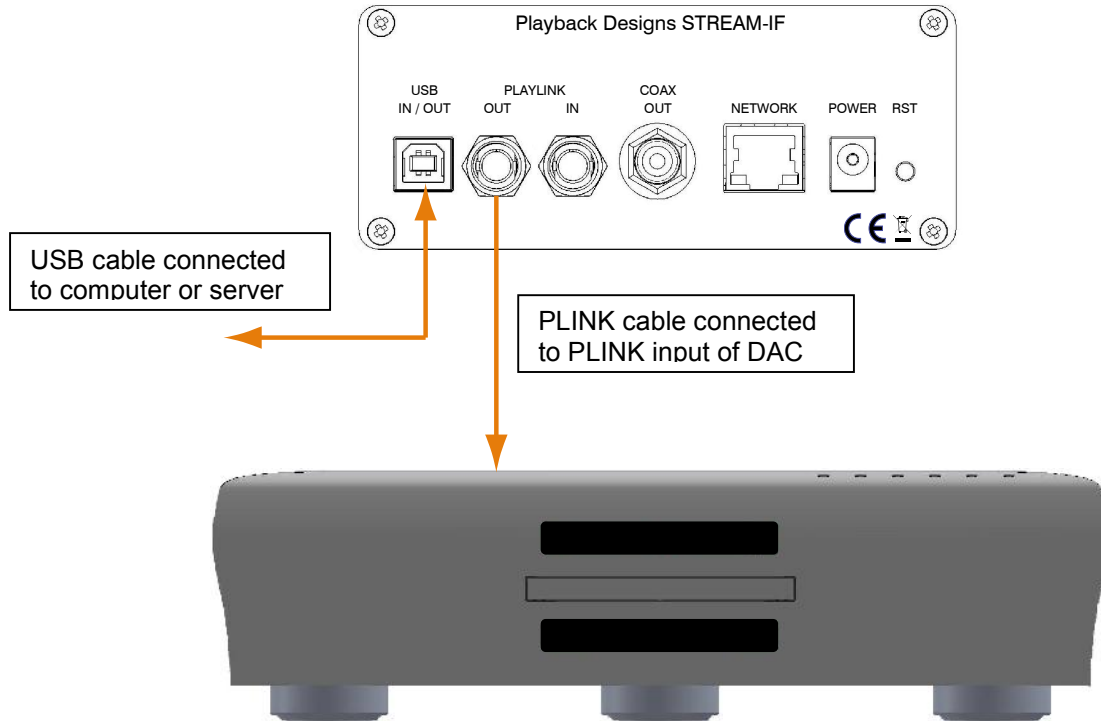
- USB IN / OUT:** Direct USB connection to computers and servers for PCM at sample rates up to 384kHz and DSD up to 11.2MHz. Audio played into this interface from an external source will be encoded natively to the PLINK format to be sent to a connected Playback Designs digital product. Any digital audio passing through the Stream-IF can also be recorded onto a computer through this interface.
- COAX OUT:** Any audio passing through the Stream-IF is available through this output with sample rates up to 192kHz for PCM and single rate DSD via DoP. Higher sample rates are down-converted to 176.4 / 192kHz for PCM and single rate DSD via DoP for DSD.
- PLAYLINK OUT:** Proprietary and high quality optical link to other Playback Designs equipment such as the MPD-8 DAC and others. This connection is the main output of the Stream-IF and supports multiple audio formats natively for PCM and DSD.
- PLAYLINK IN:** This connection can be used in connection with the recording capability of the USB interface. For instance, you can connect the PLAYLINK output of the MPT-8, MPS-8 or MPS-5 products to this input to record via USB anything played on these machines.
- NETWORK:** The internal Stream-X module uses this connection to your network to stream from either the internet or your storage devices connected to the same network. Please connect this to the internet and/or your internal network.
- POWER:** 7.5V DC power input for Stream-IF. Only use the included power supply.
- RESET:** Used in connection with software update procedure. When pressed during normal operation it resets the interface.

POWERING UP THE STREAM-IF

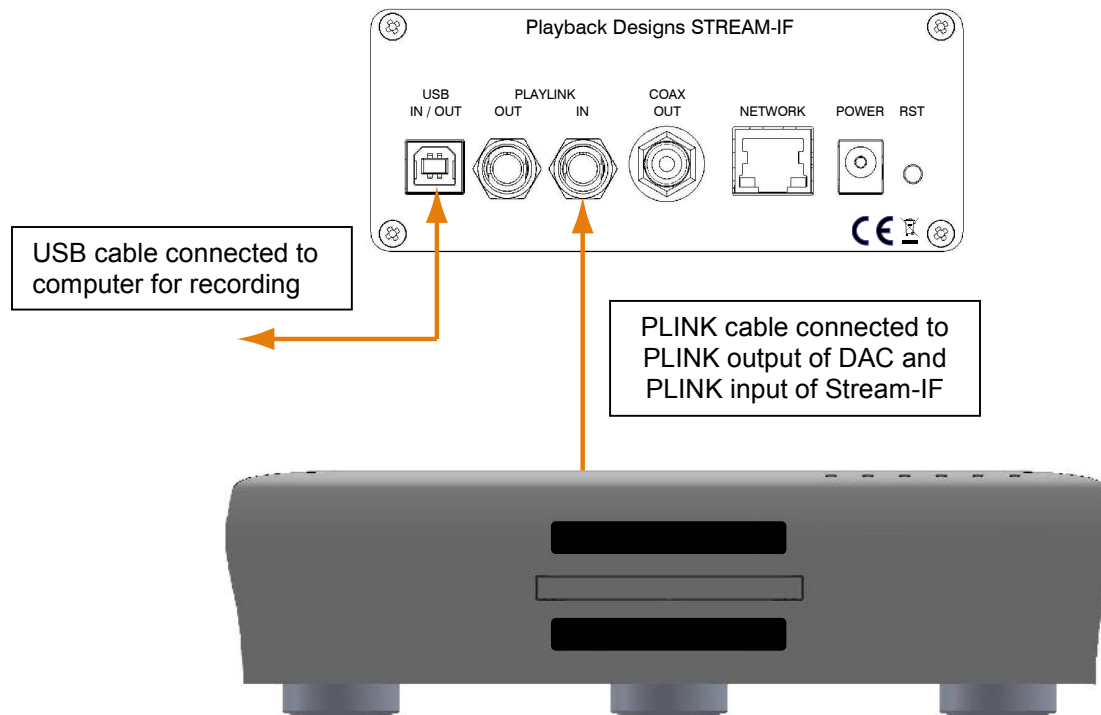
1. Connect your source(s) to USB, network and/or PLAYLINK inputs.
2. Connect your DAC to either the PLAYLINK or COAX output.
3. Connect the power supply to the power input connector.
4. Press the standby button as soon as the small dot on the display is visible.
5. Select correct input with the selector button on front panel.

CONNECTING THE STREAM-IF TO A PLAYBACK DESIGNS DAC

For **playing files** from a computer or server use this connection diagram as guideline:



For **recording** from Playback Designs player or DAC use below connection diagram as guideline. The built-in recording feature allows you to record any digital audio through its bidirectional USB Audio interface. For this purpose Playback Designs offers an easy to use software application that can be installed on any Windows PC. Download it from www.playbackdesigns.com and refer to its user manual for more details.



CONNECTING THE STREAM-IF TO A WINDOWS BASED PC or MAC

Supported resolutions:	PCM: all sample rates up to 384kHz and word lengths up to 24 bits. DSD: native up to 11.2MHz and DoP up to 5.6MHz
Connection protocol and method:	USB 2.0 / Audio class 2.0 compliant, asynchronous mode where Stream-IF generates high precision clock master and computer is clock slaved.
PC requirements:	Windows 7 or later, ASIO compatible player software such as JRiver etc.
Mac requirements:	OS X (10.6.6 or later)

In order for your computer to communicate with the Stream-IF and to exchange audio data a custom driver software needs to be installed before you can connect it to the Stream-IF. If your computer is a Mac running OSX 10.6.6 or later you don't need any driver software as OSX already supports all PCM formats up to 384kHz sample rate. DSD file playback is supported via the DoP standard using PCM frames which is also supported by OSX without any additional driver. A driver has to be installed on all Windows based PCs for any kind of audio playback via the Stream-IF.

IMPORTANT NOTE FOR PC USERS:

The Windows operating system is by design not a real-time system. It is designed to allow certain processes to take time away from real-time processes such as playing audio. This can result in audible dropouts, sometimes very short, but sometimes also quite long. Some PCs are pre-configured with drivers and processes by the manufacturer that cause such dropouts, and others are user-installed with additional software that do not allow flawless real-time playback of audio. Fortunately, there is a free utility software that allows you to test your PC for real-time capability:

1. Go to <http://www.resplendence.com/latencymon> and download the utility program LatencyMon. There is also a good description of the program and some more technical background on the same website.
2. Run LatencyMon, leave it running for 10-15 minutes and the software will tell you if your PC is suitable for playing audio without dropouts.

If you are considering purchasing a new PC, this utility program is small enough and doesn't require any installation which allows you to load it onto a flash stick and test it on the PC you are thinking about buying. Most computer stores will allow this test.

Driver software installation and first time connection on Windows based computers:

1. Download the latest USB driver from the support section on our website: www.playbackdesigns.com
2. Double click on the installer and follow instructions on your screen.
3. Power on the Stream-IF and connect the included USB cable between the USB connector on your Stream-IF and your computer.
4. Select USB Input on your Stream-IF.
5. The computer will take a moment to enumerate the Stream-IF on its USB bus and notify you when it is installed successfully. You can check successful driver installation and connection in the device manager, where the driver will show up as AKDesign USB Audio under the Sound, Video and Game Controllers tab. It will not be listed in the Sound Control panel.



6. Configure your player software to send audio data to the ASIO interface. Depending on your player software this may be identified as “AKDesign USB ASIO” or simply as “ASIO”. Some players may need a plug-in for ASIO compatible playback.
7. For best performance and bit perfect reproduction make sure to set all volume controls in the computer playback software to exactly 0db (wide open), turn off all effects or equalizer that might be running in your playback software. Control the volume only with your analog pre-amp.

Connecting Apple computers:

No driver needs to be installed. If you are planning to play DSD files make sure your playback software sends them via DoP to the Stream-IF

During playback with PC

When changing songs from within your player software running on your computer, the USB protocol automatically communicates all necessary sample rate changes to the Stream-IF. The front panel of the Stream-IF always indicates the true sample rate during file playback. This system will never perform any sample rate conversion or any signal processing that could adversely affect the sonic performance, but rather use the exact bits from your file and convert them directly to analog.

During playback with Mac

The native OSX operating system and iTunes do not understand the needs of audiophile consumers and insist on sample rate conversion. When connecting the Stream-IF OSX will automatically select the highest possible sample rate (384kHz) and convert all your songs to this rate before playing them out through USB. This will result in degraded performance. You can manually select the sample rate in the Audio/MIDI Setup utility to correspond with the native sample rate of the song, but this can be a tedious process if your library contains songs with more than 1 sample rate. Alternatively, 3rd party plug-ins for iTunes exist that automate this process and always select the correct sample rate for bit perfect playback.

Playback of DSD files

The driver software and Stream-IF hardware are designed to support playback of DSD files at sample rates up to 11.2MHz. You will need a playback software running on your computer that can read DSD files and play them to the USB driver. On the Mac platform you will have to use a playback software that supports the DoP standard for playing DSD files.

General notes

1. For best performance and bit perfect reproduction make sure to set all volume controls in the playback software, control panel to exactly 0db (wide open), turn off all operating system sounds, effects or equalizer that might be running in your playback software or Windows / OSX. Control the volume only with your analog pre-amp.
2. While the Stream-IF has no problem supporting playback via USB while it is switched to a different input (i.e. PLINK or Coax input) it is a good idea to stop playback on your computer before selecting another input. The clock management in the Stream-IF may not provide the correct frequency to the USB port if it is not selected. The computer software may have a problem with that and may malfunction. So when not listening to the USB input, stop playback on your computer.

UPGRADING THE FIRMWARE IN YOUR STREAM-IF

Playback Designs is constantly innovating new algorithms and methods for audio processing and from time to time may release new firmware for the Stream-IF that may further enhance the sonic performance or add new features. New releases will be distributed as audio wave files. They can be played into the Stream-IF via its USB input just like any other audio file. The Stream-IF processor will automatically detect this file and update the firmware. No audio will be audible as the processor will automatically mute all outputs.

Upgrade Procedure:

1. Power on the Stream-IF.
2. Connect your computer with the included USB cable to the USB input on the rear panel.
3. Load the wave file with the update firmware into your player software on your computer. As iTunes on Mac computers is not a bit perfect player you cannot use iTunes for this procedure, but we have confirmed that Audirvana works perfectly on Mac computers. On the Windows platform we have verified Foobar and Roon, but JRiver won't play this file.
4. Play the file.
5. The front panel will indicate UPDATING. It is important that at this point you no longer touch the system, nor your PC, nor the remote, don't change the input, don't turn the power off. Go have a glass of Playback Designs wine, because it will take about 2 minutes for this to finish.
6. Once playback has finished the front panel will return to either normal display or it will say FAILURE. A failure can happen when you didn't follow the instructions in the previous steps or your PC had a dropout during playback. If this failure happens, don't panic, but follow the next steps precisely:
 - a. DO NOT POWER OFF the Stream-IF.
 - b. Disconnect your computer from the Stream-IF.
 - c. Push the RESET button on the front panel.
 - d. Push the standby button to turn the Stream-IF back on again.
 - e. Re-connect the USB cable.
 - f. play a normal audio file to make sure everything is still working normally.
 - g. Stop playback and go to step 3.
7. If playback of the update file has finished and the front panel does not display any error message, but indicates normal operation then stop playback and disconnect the USB cable.
8. power off the Stream-IF by disconnecting it from the power supply (simply cycling through standby without physically pulling the power cable out is not sufficient).
9. power on the Stream-IF and check the software version in the setup menu to confirm everything worked okay.

OPERATING THE STREAM-X MODULE

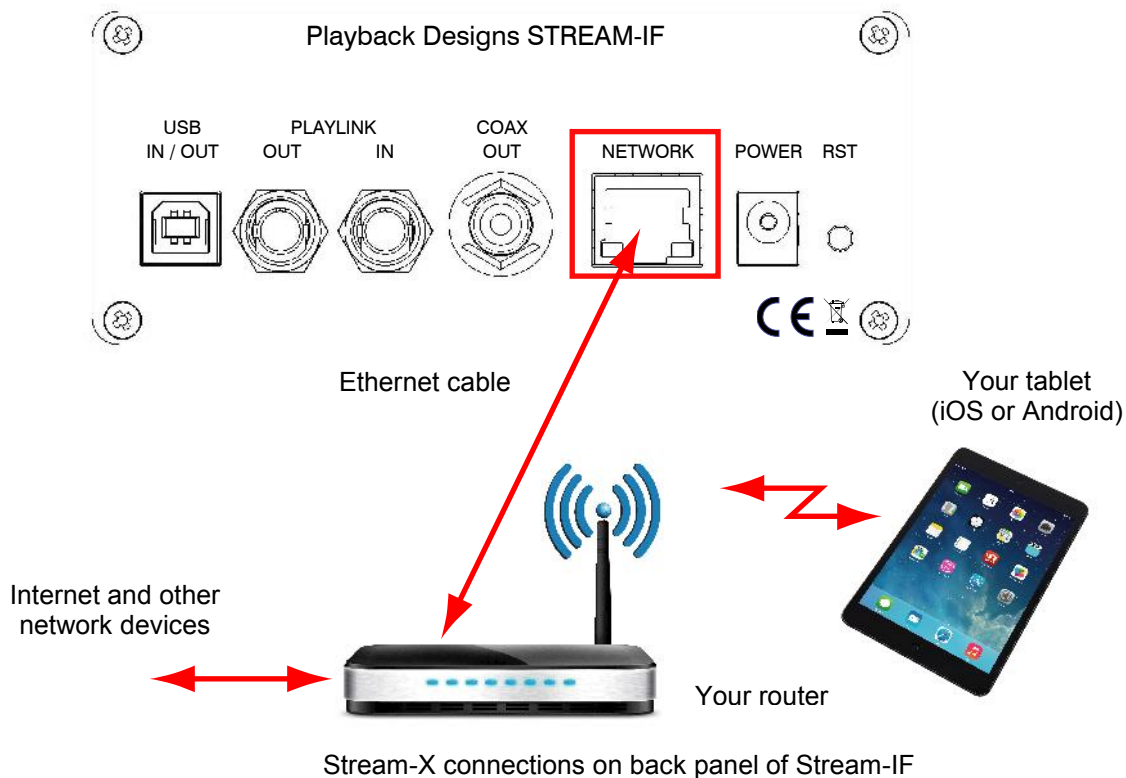
Stream-X is a module inside the Stream-IF interface. It offers streaming directly from services such as Tidal, Qobuz, Deezer and vTuner. It can also be used to stream from network storage (NAS) or from USB flash stick (no HDD supported) that is directly attached to the USB connector on the front panel. It is a DLNA renderer and server and also supports the Roon network protocol. It makes your setup with the connected DAC "roon-ready".

Supported formats: PCM up to 192kHz in WAVE, WMA, FLAC, AAC, AIFF, Apple Lossless, and MP3 file formats
 Single rate DSD (via DoP) in DSF file format.
 NOTE: not all DLNA servers support DSD files and depending on your NAS or DLNA server DSD files may not play correctly through Stream-X.

Supported network protocols: DLNA, UPnP, Roon

Supported streaming services: Tidal, Qobuz, Deezer, vTuner

CONNECTING STREAM-X TO YOUR NETWORK



Network: Connect this to your network router and make sure it is connected to the internet and its wireless network is active. The Stream-X needs this network connection to connect and play any streaming media from the internet. It also uses it to connect to your tablet for remote control or to your Roon server.

Front Panel USB: This is where you can plug in flash sticks (no HDD supported) with music files that Stream-X can play.

PREPARING YOUR TABLET AND CONNECTING IT TO STREAM-X

Any Apple iPad or Android tablet can be used to control Stream-X. The Apple iPad Mini is recommended for best ease of use. To use the tablet it is necessary to download and install an app from a 3rd party vendor (ConversDigital). The Stream-X uses the DLNA protocol and so most DLNA controller can connect with Stream-X. But we have worked with this 3rd party vendor to also include features that are not supported in DLNA and so we recommend strongly to use that 3rd party app by ConversDigital.. The following apps are available depending on tablet and desired features:

1. **mconnect Control HD**: this free app can only be used in landscape orientation. It does not support iPhone. This app gives you all the features that Stream-X is capable of and also offers you the most comprehensive user interface with the most important functions are accessible on a single page. This app also incorporates features that are not supported in the standard DLNA protocol, such as firmware update and complete set of features for all streaming services.
2. **mconnect Control**: this free app is functionally the same as mconnect Control HD, but it only runs in portrait mode and is also supported on the iPhone. Since it supports smaller screens of phones it has a layered user interface where various features are in separate pages. This app also incorporates features that are not supported in the standard DLNA protocol, such as firmware update and complete set of features for all streaming services.
3. **mconnect Player**: there is also a Lite version. These are general purpose DLNA apps and are, therefore, not free or come with advertising. They do not support our additional features and only support limited streaming services. While they work fine with Stream-X we highly recommend you use either one of the **mconnect Control** apps.

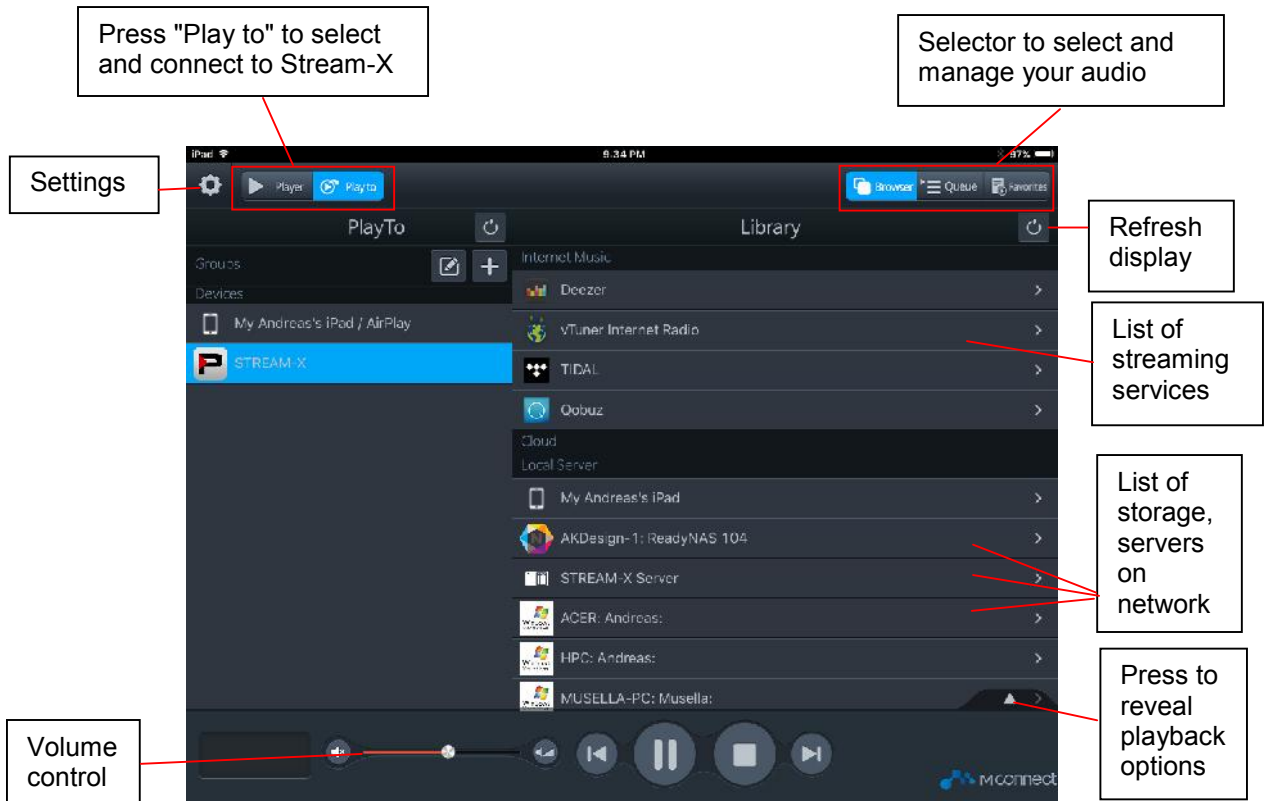
Follow these steps:

1. Connect your tablet or phone to the internet.
2. Launch App Store (iPad) or Play Store (Android) and search for "mconnect Control".
3. Install either "mconnect Control" or "mconnect Control HD".
4. Check that your tablet is connected to the same network as Stream-X
5. If not done so already, power on your Stream-IF (select STREAM-X input). After a fresh power up, it may take a few seconds to start. Just wait until the front panel indicates a valid sample rate.

CONTROLLING STREAM-X

In the following guideline we will use the mconnect Control HD app. Follow these steps:

1. Connect your tablet or phone to the internet and make sure it is on the same network as Stream-X.
2. Launch App Store (iPad) or Play Store (Android) and search for "mconnect Control".
3. Install either "mconnect Control" or "mconnect Control HD".
4. If not done so already, power on your Stream-X (select STREAM-X input). After a fresh power up, it may take a few seconds to start. Just wait until the front panel indicates a valid sample rate.
5. Launch the mconnect Control app. The following screen presents itself:



6. If you launched the app for the first time it is possible that Stream-X is not yet connected to the app. Just press the button in top left corner "Play to" and select Stream-X from the list that appears below.
7. Once you are connected to the Stream-X you can select your music in the Library section on the right side of the screen:
 - Deezer, Tidal and Qobuz are all streaming services with various degrees of audio quality. All 3 offer high resolution streaming. If you select one of those in the list you will be prompted for your account info. If you don't have an account you will have to create one first by going to the corresponding website.
 - vTuner is a collection of free radio stations from around the world.

Below the list of streaming services you find a list of computers and storage devices on your network. If you see a line "STREAM-X Server" as in the above screen shot, it means that there is a USB stick connected directly to the Stream-X module (Streamer USB connector on back panel). In this case the Stream-X module acts as a server. Tapping on any of these lines will allow you to select any song that this particular storage device contains.

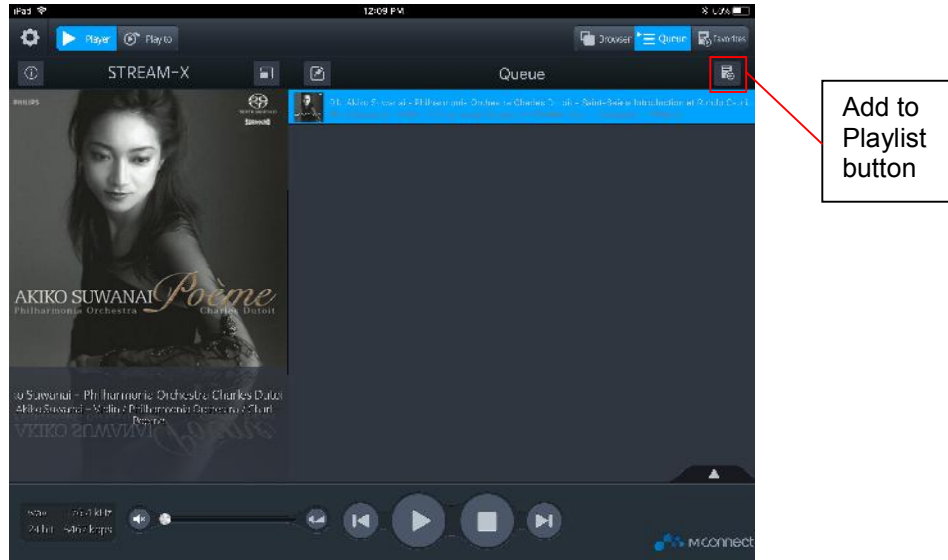
In this list you can also see a list of computers and other DLNA or UPnP servers with storage that might contain playable audio files.

The volume button to the left of the transport keys has no function as the Stream-X interface has no analog outputs.

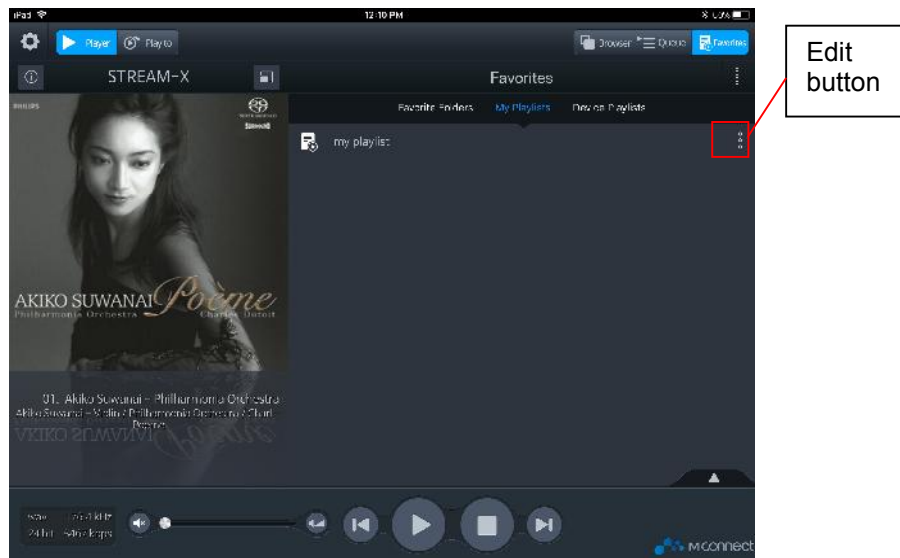
8. In the upper right corner you can select the view between Browser, Queue and Favorites:
 - The browser allows you to browse and select streaming services or files in the list of storage
 - The Queue page shows your current list of music playing and allows you to create playlists.
 - The Favorites page is a list of your favorite music and playlists. Here you can also edit playlists.

CREATING AND EDITING PLAYLISTS

1. Select a song in the browser page. This will automatically take that song to the queue and play it along with any other song that might be in the same album.
2. Switch to the Queue page (press Queue in upper right corner). You will see the following page with the selected songs:



3. Press the "Add to Playlist" button on upper right corner. You will be prompted to select an existing playlist or to create a new one.
4. On the next page you will be able to select the songs in the queue that you want to transfer into the playlist. When done with your selections press the DONE button in upper right corner.
5. Select Favorites view and "My Playlists" under favorites. There you will see your playlist you just created. You can play, rename or delete the playlist by pressing the edit button on the same line of each playlist:



6. Select your playlist from the list and the next page will show you the contents of your playlist.
7. In this page you can edit your playlist by pressing the EDIT button or you can add more tracks by pressing the PLUS button:

