Stream-X2
Streaming and Digital 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-X2 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 2 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-X2 interface
  PLINK optical cable
  Power cord (100-120V countries only)
  User manual
  No remote control unit is included since you can use the same one that came with your Playback Designs Dream or Edelweiss system.

- Registration

  Please take a moment and send us an email to info@playbackdesigns.com so we can register you for the warranty.

- Installation:

  Before connecting your STREAM-X2 to the AC mains, make sure you select the correct voltage on the rear panel (100V, 120V or 230-240V). Operating this machine at the wrong AC voltage will cause serious damage.
  Do not place the STREAM-X2 over an amplifier or any other equipment that generates heat.

  As this product may become warm during operation, always leave sufficient space around the player for ventilation. Always allow adequate air circulation around the product.



Before connecting the STREAM-X2 to AC power make sure you select the correct voltage for your country on the Voltage Selector switch located on the rear panel.

ACKNOWLEGEMENTS

CONCEPT OF THE STREAM-X2 AND THE PLINK INTERFACES

The STREAM-X2 provides streaming connections from internet, network attached storage (NAS), USB sources (computers, servers etc.) and other standard digital inputs. It carefully removes any incoming jitter by Playback Designs' proprietary clocking and buffering system and then encodes all data natively to either the standard Coax / AES outputs or the Playback Designs proprietary PLINK output. PLINK is a high quality fiber optical link used on most Playback Designs equipment and it natively supports all formats of PCM and DSD. Because its media is fiber optic it isolates the sensitive circuitry in your Playback Designs DAC from the generally "noisy" digital sources with high clock jitter. This separation results 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, it is rather 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. **Cable specs: ST-ST fiber optic, multimode, 62.5/125µm.** For PLINK we use a much lower bandwidth protocol than the specified limit of the media to further increase robustness against jitter.

The STREAM-X2 interface understands both formats, "Classic" and "Sonoma" (selectable in settings menu) and has six digital inputs. Besides the standard AES, Coax and Toslink inputs it also has the following:

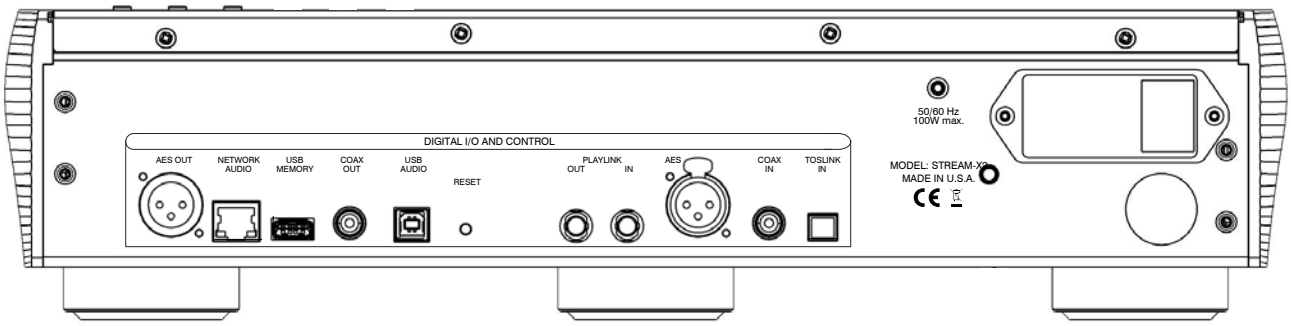
1. USB for PCM up to 384kHz and native DSD up to 11.2MHz

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.

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-X2 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 AES / Coax outputs.
The PLINK output is never downsampled and always supports the native sample rate of the audio file.

CONNECTIONS



USB AUDIO: 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-X2 can also be recorded onto a computer through this interface.

AES OUT: Any audio passing through the STREAM-X2 is available through this output with sample rates up to192kHz 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.

COAX OUT: Same as AES OUT.

PLINK 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-X2 and supports multiple audio formats natively for PCM and DSD.
Cable specs: ST-ST fiber optic, multimode, 62.5/125µm.

PLINK IN: This connection can be used in connection with the recording capability of the USB interface. For instance, you can connect the PLINK output of the MPT-8, MPS-8 or MPS-6 products to this input to record via USB anything played on these machines.
Cable specs: ST-ST fiber optic, multimode, 62.5/125µm.

NETWORK: The internal Stream-X2 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.

USB MEMORY: This port an be used to connect flash sticks (no HDD supported) with audio files for the Stream-X2 module to play.

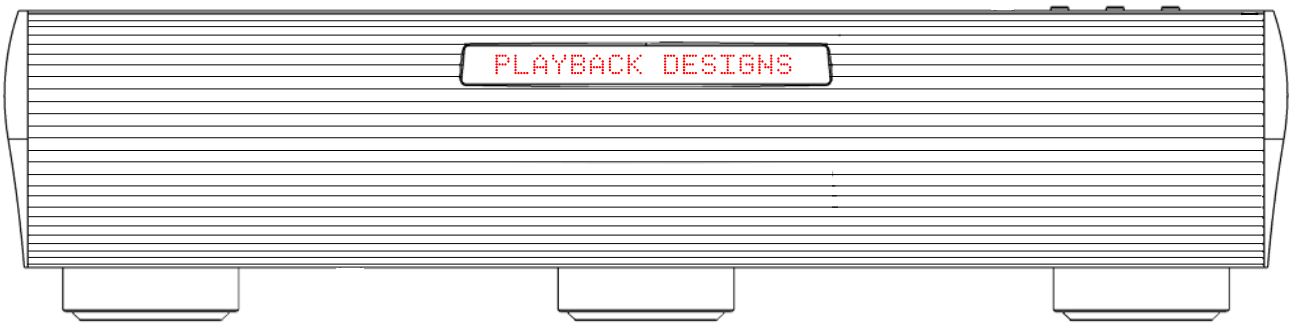
AES / COAX / TOSLINK IN: standard interfaces. AES and Coax support DSD via DoP. .

RESET: Used in connection with the software update procedure. When pressed during normal operation it resets the interface, similar to a power cycle.

POWER: Before connecting the STREAM-X2 to the AC mains, please make sure you select the correct voltage for your country on the Voltage Selector switch located on the rear panel. Operating the STREAM-X2 at the wrong voltage will damage the unit.

NOTE: you should always switch power to standby first before turning off the main power switch on the back.

FRONT PANEL FUNCTIONS



Buttons: ▼ ▲ Move up and down the chain of activated inputs.

⏻ Standby power on / off.

CONNECTING THE STREAM-X2 TO A WINDOWS, MAC OR LINUX BASED PC

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-X2 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)
Linux computer requirements:	Any Linux version with kernel-integrated USB driver (not ALSA).

In order for your computer to communicate with the STREAM-X2 and to exchange audio data a custom driver software needs to be installed before you can connect it to the STREAM-X2. If your computer is a Mac running OSX 10.6.6 or later or you are using a Linux computer you don't need any driver software. DSD file playback is supported on Mac via the DoP standard, and on Linux computers natively up to DSD4x. A driver has to be installed on all Windows based PCs for any kind of audio playback via the STREAM-X2.

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-X2 and connect the included USB cable between the USB connector on your STREAM-X2 and your computer.

4. Select USB Input on your STREAM-X2.

5. The computer will take a moment to enumerate the STREAM-X2 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 or Linux computers:
No driver needs to be installed. If you are planning to play DSD files on a Mac make sure your playback software sends them via DoP to the STREAM-X2. Linux supports DSD playback natively without DoP.

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-X2. The front panel of the STREAM-X2 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 send them out via PLINK to your Playback Designs D/A converter.

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-X2 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-X2 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-X2 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-X2 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.

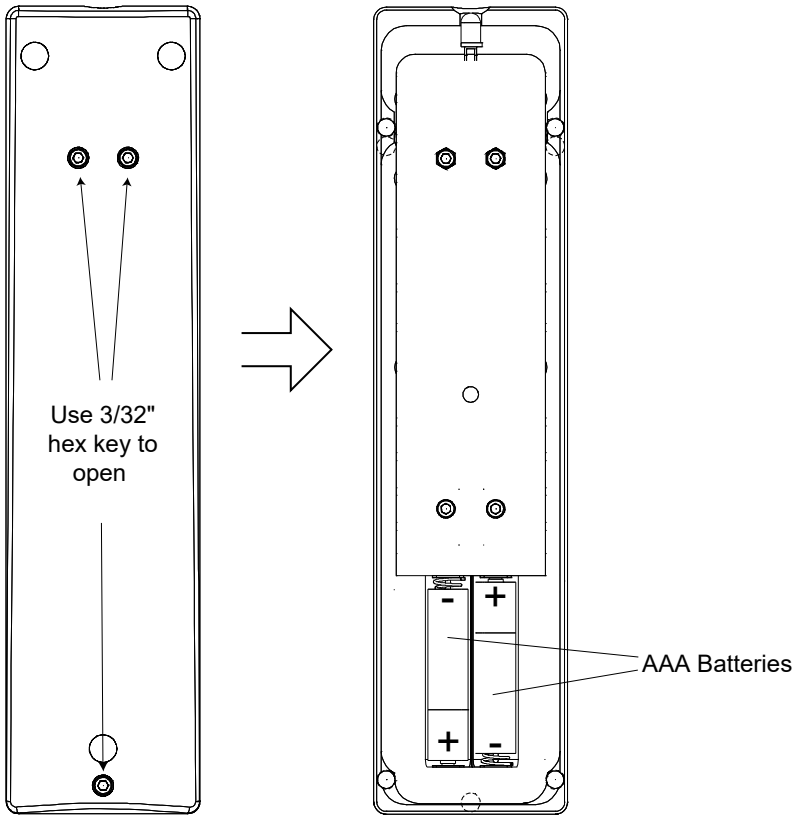
REMOTE CONTROL UNIT

No remote control is included with the STREAM-X2, but you can use the same remote control that came with your Playback Designs Dream or Edelweiss system that you are using in connection with the STREAM-X2.



⚙	Opens the settings menu on front panel. Press the DISC (digital source) button first to select the STREAM-X2 settings. If you selected the PRE column to control the STREAM-X2 then you need to press the PRE button instead of DISC before pressing the settings button.
↑ ↓	During normal operation these up and down arrows directly below the DISC (or PRE) button toggle through the active inputs of the STREAM-X2. During settings display these buttons toggle through the settings menu.
DIM	Dims the display on front panel.
All others	No function on STREAM-X2.

CHANGING BATTERIES ON REMOTE



Backside of remote

Back cover removed

The remote operates with 2 AAA size batteries. In order to change them the back cover needs to be removed as shown in picture on the left. Make sure that replacement batteries are inserted with their polarities as indicated in the picture. The screws can be opened with a hex 3/32 inch key.

SETTING UP AND SELECTING DIGITAL INPUTS WITH THE REMOTE

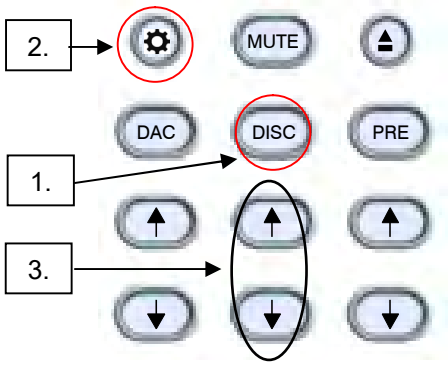
For selecting digital inputs the IR remote provides buttons with up and down arrows right below the DISC button (or the PRE button when this column is selected (see setup menu). With these buttons you can select any of the six digital inputs on the STREAM-X2 by toggling up and down through the list.

You can drastically shorten the list of selectable digital inputs by deactivating those that you don't use (see setup menu for further details). For instance, if you only use the USB and AES inputs you can deactivate all others and then use either the up or down arrow button below the DISC or PRE button on your remote to switch back and forth between USB and AES input.



SETUP MENU

The STREAM-X2 has several options that can be displayed and set via the remote control unit that came with either your Dream or Edelweiss system. By pressing the DISC button on the remote first and then the SETTINGS button within 5 seconds the top display starts to flash while displaying the first item in the setup menu. Use the arrow buttons to go to the next setting.



To change any settings in the menu the PLAY button can be pressed. Once you have programmed all settings you can exit the menu by pressing the SETTINGS button again.

The following options are available in sequence:

1. List of 6 individual digital inputs: each input can be turned off so it no longer is available in the selection during normal operation. For instance, if you only use two inputs you can turn off all others. You can then switch between your two inputs with the front panel button or arrow buttons on the remote.

2. Serial number of your STREAM-X2. This option is not user programmable.

3. Firmware version. This option is not user programmable.

4. REMOTE: If you are using the STREAM-X2 in connection with any of the Dream or Edelweiss players you may want to program the remote control such that you can use the PRE column instead of the DISC column to select inputs or maneuver through the setup menu. This is to avoid a conflict with your player which already uses the DISC column. Choose between DISC or PRE column by pressing the PLAY button.

5. PLINK OUT: if you want to connect your STREAM-X2 to a classic Playback Designs DAC (such as MPS-5) you need to select the "Classic" format. All other products use the "Sonoma" format.

6. PLINK IN: if you want to connect a classic Playback Designs source (such as MPS-5) you need to select the "Classic" format. All other products use the "Sonoma" format.

7. IR LOCK: with IR control there is always a chance for conflicts where 2 different machines use the same codes. This feature allows you to disable the IR commands for the STREAM-X2.

8. HOURS: this indicates how many hours your STREAM-X2 has been operating during its life.

CHANGING THE FUSE ON THE STREAM-X2

Inside the power connector on the rear panel of the STREAM-X2 are two fuses that protect the machine from dangerous power surges. If the machine fails to power up or no light on the front panel is lit after pressing the standby power button on the front panel then proceed as follows to change the fuses:

1. Locate fuse compartment on power connector on rear panel:



Prying open with small screw driver Fuse compartment

2. Use a small flat screw driver to pry open the fuse compartment as shown in above picture.

3. Pull fuse compartment out and flip sideways as shown below:



4. Replace both fuses with 1.6A / 250V slow blow types. Length is 20mm

CLEANING THE CHASSIS OF THE STREAM-X2

It is possible that the chassis can stain slightly from finger prints or you may discover subtle stains on the surface after some use. You can easily clean the chassis with a window cleaning solution and a clean and soft cloth. The best way is with a micro fiber cloth.

SPECIFICATIONS

Power Supply
Selectable……..AC 100V-240V, 50-60Hz
Consumption……..... 100W max.

Weight…….. 9 kg / 19 lb

Batteries for remote control unit……2x AAA

Ext. dimensions (W x H x D) 44 x 11 x 43 cm
17.3 x 4.3 x 16.9 inches

Operating Temperature……+5°C to +30°C

Mains fuse: 1.6A / 250V slow blow, 20mm

UPGRADING THE FIRMWARE IN YOUR STREAM-X2

Playback Designs is constantly innovating new algorithms and methods for audio processing and from time to time may release new firmware for the STREAM-X2 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-X2 via its USB input just like any other audio file. The STREAM-X2 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-X2.

2. Connect your computer with a 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 WRITING FLASH. 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 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 WRITING 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-X2.
   b. Disconnect your computer from the STREAM-X2.
   c. Push the RESET button on the back panel.
   d. Re-connect the USB cable.
   e. Play a normal audio file to make sure everything is still working normally.
   f. Stop playback and go back 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-X2.

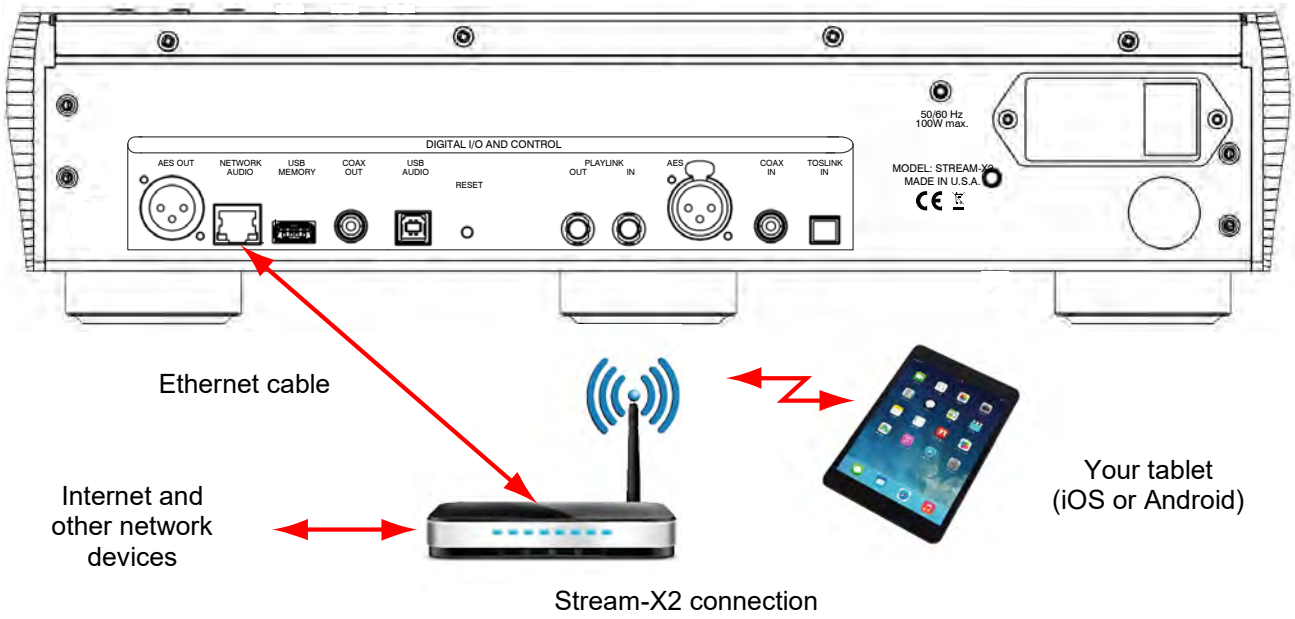
9. Power on the STREAM-X2 and check the software version in the setup menu to confirm everything worked okay.

OPERATING THE STREAMER INPUT

Stream-X2 is a second generation streaming interface and offers streaming directly from services such as Tidal, Quobuz, 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 384kHz in WAVE, WMA, FLAC, AAC, AIFF, Apple Lossless, and MP3 file formats DSD up to 11.2MHz in DSF and DFF file formats. NOTE: not all DLNA servers support DSD files and depending on your NAS or DLNA server DSD files may not be played correctly.
Supported network protocols:	DLNA, UPnP, Roon
Supported streaming services:	Tidal, Qobuz, Deezer, vTuner

CONNECTING STREAM-X2 TO YOUR NETWORK



Stream-X2 connection

Network Audio: Connect this to your network router and make sure it is connected to the internet and its wireless network is active. The Stream-X2 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.

USB Memory: This is where you can plug in flash sticks (no HDD supported) with music files that Stream-X2 can play.

PREPARING YOUR TABLET AND CONNECTING IT TO STREAM-X2

Any Apple iPad or Android tablet can be used to control Stream-X2. 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-X2 uses the DLNA protocol and so most DLNA controllers can connect with Stream-X2. 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-X2 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-X2 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-X2

5. If not done so already, power on your STREAM-X2 (select STREAM-X2 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-X2

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

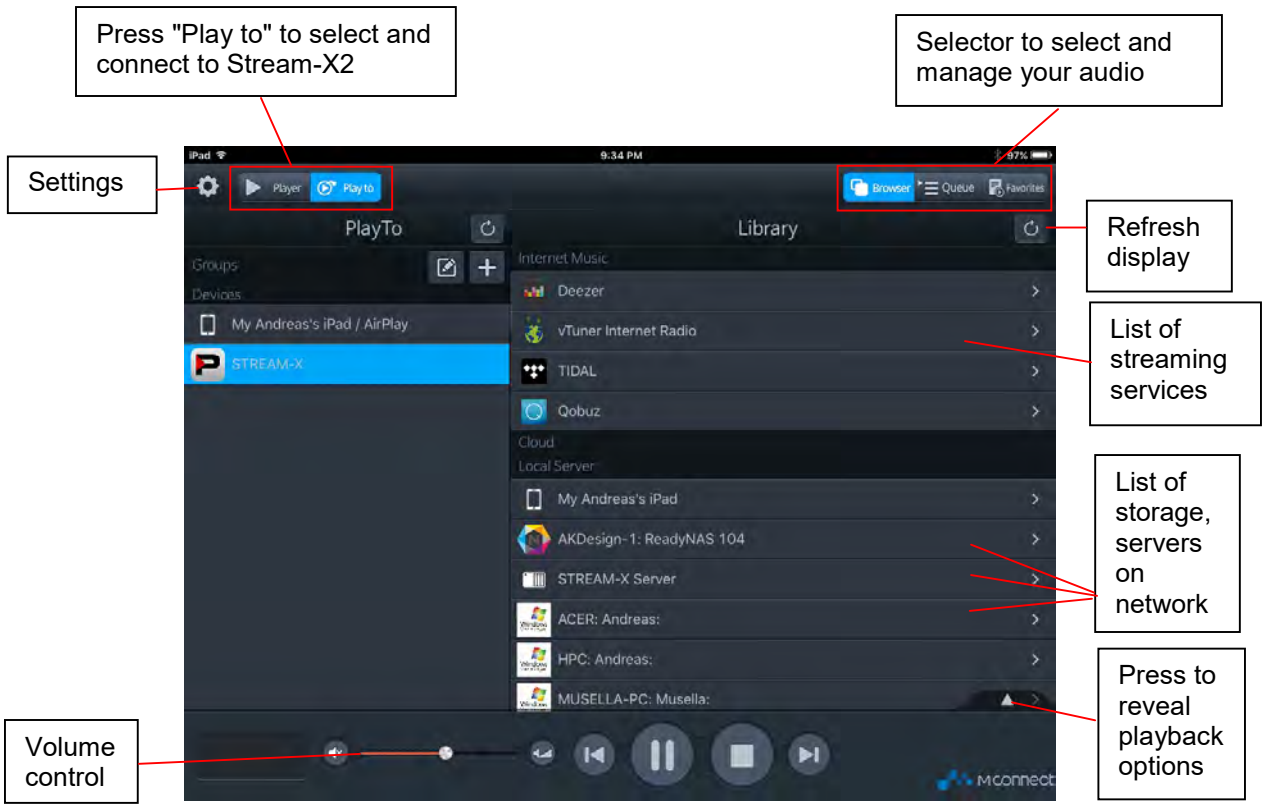
1. Connect your tablet or phone to the internet and make sure it is on the same network as Stream-X2.

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-X2 (select STREAMER 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-X2 is not yet connected to the app. Just press the button in top left corner "Play to" and select Stream-X2 from the list that appears below.

7. Once you are connected to the Stream-X2 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 "Playback Stream-X2 Server" as in the above screen shot, it means that there is a USB stick connected directly to the Stream-X2 module (USB MEMORY connector on back panel). In this case the Stream-X2 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-X2 interface has no analog outputs.

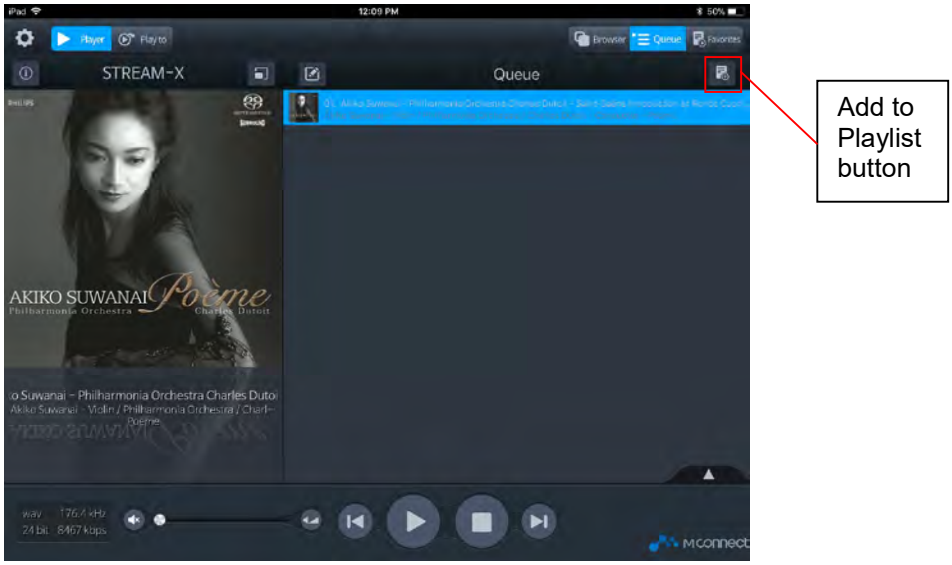
8. In the upper right corner you can select the view between Browser, Queue and Favorites:

    - 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.

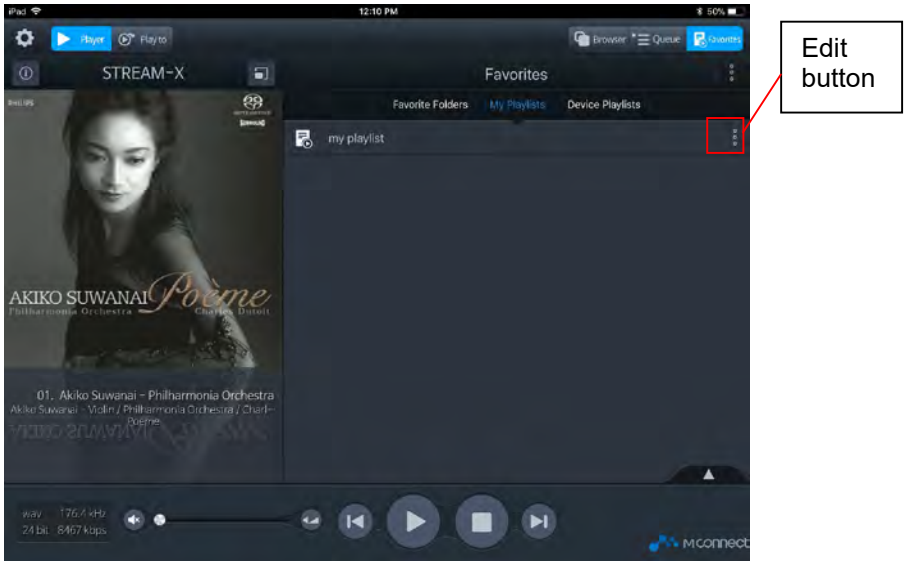
2. Switch to the Queue page (press Queue in upper right corner). You will see the following page with the selected songs:



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:

