

Manual

Nyquist

D/A Converter and Streamer



BRINKMANN

Real High Fidelity.

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SAFETY INFORMATION

Legal regulation of the European Community:

This D/A Converter had been designed and tested according to the guidelines EN55013 and EN55020, and it meets the safety requirements EN60065.

Safety Information:

Brinkmann products should only be used in dry rooms with an ambient temperature between 55-86 degrees Fahrenheit (13-30 degrees Celsius) and are only designed for 220-240V / 110-120V, 50 and 60Hz alternating current.

Please verify that the voltage rating of your power supply corresponds to the voltage requirement in your country!

Always keep the D/A Converter and power supply away from moisture, heat, open fire and other extreme conditions. Never expose to direct sunlight.

Power Supply:

The power supply is only to be connected to grounded wall sockets.

Please connect or disconnect the power supply from the D/A Converter only when the mains plug is disconnected from the mains.

Always disconnect the power supply from the mains when the D/A Converter is not used for a longer period of time (during holidays etc.)

Never leave the power supply unattended while it is connected to the mains.

Never place containers with fluids on either D/A Converter or power supply.

Never use solvent or sprays on any part of the D/A Converter or power supply!

There are NO user-serviceable parts inside the power supply.

The Mains Fuse is located externally, in the AC Receptacle Socket.

Never open the Chassis or Fuse Holder while the power supply is connected to the mains!

Attention, dangerous voltage!

The power supply is equipped with a temperature limiter that switches off at about 150 degrees F (65°C) ; to guarantee proper function please make sure to maintain free space for air circulation measuring 12" (30cm) above the power supply and 4" (10cm) on either side. The heatsinks and the power supply must never be covered!

After disconnecting from the mains, the D/A Converter can be cleaned with a dry cloth or soft brush.

Do NOT use liquid cleaners! Wet cleaning can cause damage!

Repairs, modifications etc. are only to be carried out by Brinkmann Audio GmbH itself or by our specifically authorized service centers!

CLEANING

The power supply and **Nyquist** are only to be cleaned with a dry cloth, such as microfiber. Please disconnect power supply from the mains before cleaning either chassis.

“Wet” cleaning must be avoided! Liquids may cause a short circuit or other electrical hazard inside **Nyquist** or power supply.

The glass top cover should not be removed while **Nyquist** is connected to the mains.

WARNING: Dangerously high voltages inside, risk of electrical shock!

Failure to follow these safety precautions will void the Manufacturer’s Warranty of Brinkmann Audio GmbH.

WARRANTY

Brinkmann Audio GmbH warrants this product to be free of defects in materials and workmanship for a period of three (3) years from the Date of sale. This warranty doesn’t cover shipping costs either to or from our company for repair purposes.

Repairs and changes to **Nyquist** should only be performed by Brinkmann Audio GmbH or by Brinkmann-authorized service facilities.

Brinkmann Audio GmbH may not be held liable for costs of repairs performed by non-authorized service facilities.

Unauthorized changes or modifications to the Product, as well as improper use and connection of the Product will void the Manufacturer’s Warranty.

Repairs or modifications performed by non-authorized service facilities will void Manufacturer’s Warranty.

ATTENTION

Digital components are sensitive and need to be powered off when connecting or disconnecting other components. Should this be forgotten and lead to problems, please switch off **Nyquist** and switch it on again when everything is connected properly.

TUBES

Nyquist utilizes four (4) NOS (New, Old Stock) Telefunken PCF803 tubes (two per channel).

The PCF803 was developed in the 60s for use in colour television.

The company “Telefunken” in Berlin was known for highest quality and durability of their products and for using state-of-the-art technologies for their production.

Each tube contains two internal circuits: one pentode and one triode.

The PCF803 in the **Nyquist** D/A Converter are used for the output stage and the analog gain control.

The PCF803 was designed to last for a minimum of ten years of hard use in a colour TV. As **Nyquist** does not stress the tubes to this degree, tube life expectancy is much longer. Brinkmann maintains extensive stocks of this tube, so replacements are readily available. Do not use tubes from other sources, replace with original Telefunken PCF803—preferably a matched set—which are available from Brinkmann.

POWER SUPPLY

The power supply is housed in a metal chassis crafted from anodized aluminium. This chassis is connected to the ground or “Earth” connection of the power plug. The power supply should **ONLY** be connected to the mains with a three-prong power cord.

The power supply includes a transformer that converts the mains voltage into several discrete voltages as required by various circuits within **Nyquist**.

One of these voltages is rectified and stabilized at 22 VDC. The output is short circuit proof for a current of 1A and will be shut down by a PTC during short circuit. The other alternating voltages are used in the preamplifier section. It is important to take care that the connection cable with the 7-pole connector is not damaged or snapped.

AC POWER CORD

As with all Brinkmann Audio products, **Nyquist** ships with a purpose-designed, 3-pole mains cord. Unlike the “Commodity” mains cords supplied with many audio products, this Brinkmann Cord has been engineered and tuned by Helmut Brinkmann to deliver superior sonic performance with our products. It is hand built by Brinkmann Audio using rigidly specified cabling and connectors. Although many customers will prefer to use aftermarket cables, we suggest auditioning the supplied mains cable first.

DIGITAL MODULE

The digital module of **Nyquist** is easily removable and exchangeable; consequently, **Nyquist** can be upgraded to accommodate future formats simply by replacing the module, rather than replacing the complete product.

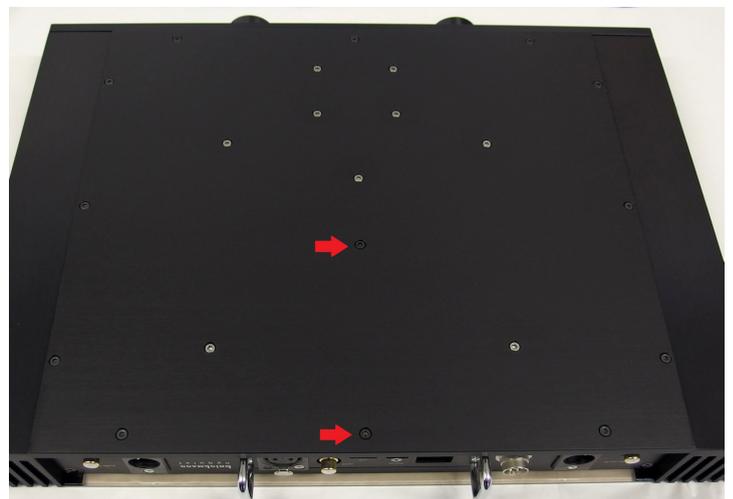
The **Nyquist** D/A Converter ships with the digital module installed and ready for operation.

Removal and Replacement of Digital Module:

Always disconnect **Nyquist** from the mains before removing the digital module!!

Located on the back panel are two handles to facilitate the secure remove and re-installation of the digital module. **Nyquist** needs to be turned upside down and the two screws (shown in the picture) removed. Next, return **Nyquist** to upright position and slowly, carefully pull out the module with the handles. For re-installation please follow the same instructions in reverse order.

There is no need to remove the digital module unless it needs to be exchanged!



REMOTE CONTROL

The remote control works with an IR sensor and needs approx. 20cm free space above **Nyquist** to allow for flawless “Line of sight” function.

The top three buttons on the remote control are for input selection (left and right) and for phase selection (middle).

The three buttons in the second row are for gain / headphone volume (left and right) and for mute (middle).

Pushing the „mute“ button twice while the headphone output is activated switches back to regular playback and un-mutes the output.



HEADPHONE OPERATION

Nyquist features a headphone output on the left side of the front panel.

The headphone output gets activated and the regular output muted after connecting the headphone and pushing the “headphone” button directly above the output.

Pushing the “headphone” button again switches back to regular playback but the output is still muted and needs to be activated by pushing “mute” either on the front panel or the remote control.

Pushing the “mute” button on **Nyquist** while the headphone output is activated will switch back to unmuted regular playback.

Pushing the „mute“ button on the remote control twice while the headphone output is activated switches back to regular playback and de-mutes the output.

UNPACKING

Your **Nyquist** D/A Converter is delivered in a double-carton shipping box with highly protective internal packaging material. In the event that your DAC needs to be shipped in the future, this packaging will protect **Nyquist** and the power supply from shipping damage. **Please keep the packaging, including internal protective packaging material in order to assure maximum shipping safety for your product!**

Please find in the top layer of the protective packaging inlay:

- This Owner’s Manual
- Nyquist** D/A Converter including the digital module (installed)
- Remote Handset
- Power Supply including connection cable with 7-pole plug

In the bottom layer:

- USB stick containing this manual and the USB Driver for Windows
- Granite base for the D/A Converter
- AC Power Cord

SET UP OF NYQUIST D/A CONVERTER

The weight of **Nyquist** including the granite base is 24kg (54 lb). Therefore it is important to place **Nyquist** on a surface of approx. 40 x 45cm (16" x 18") that can comfortably support this weight. The base of **Nyquist** must have full and unimpeded contact with the surface of the granite base, which controls vibrations in the D/A Converter.

In the pursuit of resonance control, it is possible to use isolation devices from other manufacturers between the granite base and the stand; however, DO NOT employ any such devices between **Nyquist** and granite slab, as the two items are engineered and tuned as a single unit. It is important to make sure that any isolation devices are specified to support the full weight of **Nyquist** – approx. 24kg (54 lb) –. Another option could be the use of thin sheets (for example leather or rubber) in patches or for the full surface between the granite base and the stand.

There should be 20cm of free space above **Nyquist** to allow a flawless “Line of sight” function of the remote control. The IR sensor for the remote control is located internally, right beside the gain control under the top glass plate.

In case there is not enough free space above the DA Converter, it is possible to place a small upright sheet (about the size of a business card) behind the sensor of the remote control to allow for reflecting the IR impulse to the sensor.

The power supply should also be placed on a resonance free surface; for example, a small granite base.

CONNECTING NYQUIST



Nyquist features **RCA** and **XLR** outputs, located on the right and left side of the main back panel and a **7-pole** socket for the connection of the power supply.

The digital module features several different inputs on the small centre back panel:

Ethernet connector: Connect to your local network for Streaming

Toslink (optical) S/PDIF input: Connect to a digital source with optical output

USB input: Connect to PC/MAC or a server through a dedicated USB audio cable

Coax S/PDIF input (RCA): Connect a digital source with single-ended 75Ohm output

AES/EBU input (XLR): Connect a digital source with balanced 110Ohm output

Please keep to the following order when connecting Nyquist:

1. connect Signal Inputs from your digital sources to the appropriate Digital Inputs of **Nyquist**
2. connect the 7-pole plug of the power supply cable to the 7-pole connector on rear panel of **Nyquist** and tighten the cap screw
3. connect RCA or XLR outputs from **Nyquist** to the respective inputs of the preamplifier or integrated amplifier
4. connect the power supply to the mains (do this as last step!)

Nyquist does not require external power conditioning because its power supply incorporates a sophisticated power filter.

A dedicated connection to the mains without interference is beneficial for **Nyquist**. It is important not to connect the D/A Converter to the same power distributor as, for example, power amplifiers with irregular power consumption.

OPERATION

Pushing the “on-off” switch lights up both the display and the red LED at the “mute” switch. The “mute” switch is disabled as long as the display shows “Nyquist”. During this time the tubes are heated to operating temperature.

Approximately one minute after turn-on, the display shows the following (left to right, top to bottom) and **Nyquist** can be de-muted:



1. Actual Format (PCM, DSD or MQA.)
2. Actual sample frequency
(44/48/88/96/176/192/352/384 for MQA and PCM or 64/128/256 for DSD)
3. Input name
aes, coax, usb, tos or ethn
4. Output Gain (0...10 dB) or Headphone Volume (0...99)
5. Phase (0° or 180°)

Since there are no differences in volume between the different digital inputs, **Nyquist's** gain and phase stay the same when switching from one input to another.

Gain selection changes to headphone volume as soon as the headphone output is activated.

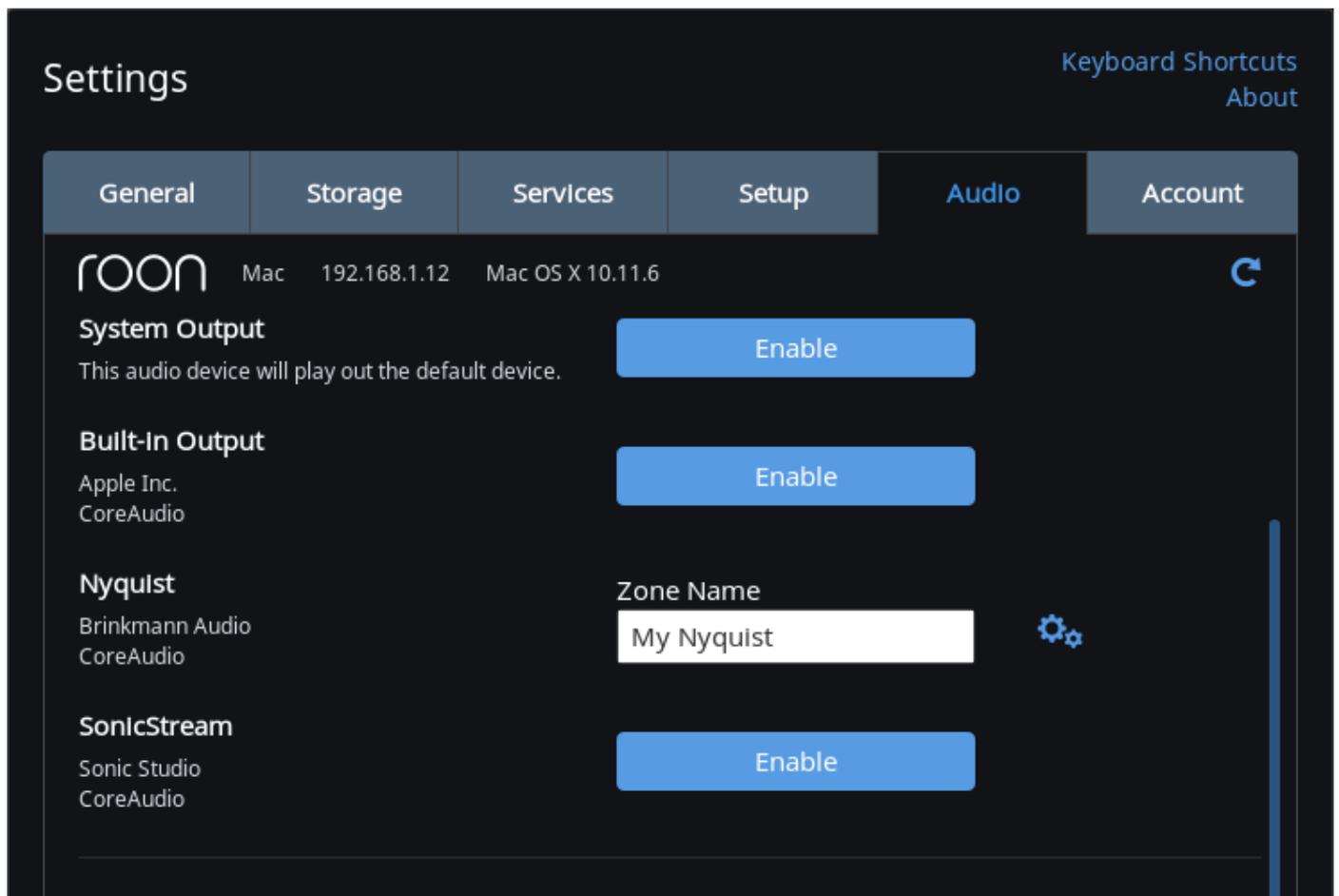
The rotary knob on the left side of the front panel changes gain / headphone volume and the rotary knob on the right side of the front panel selects the input.

USB INPUT

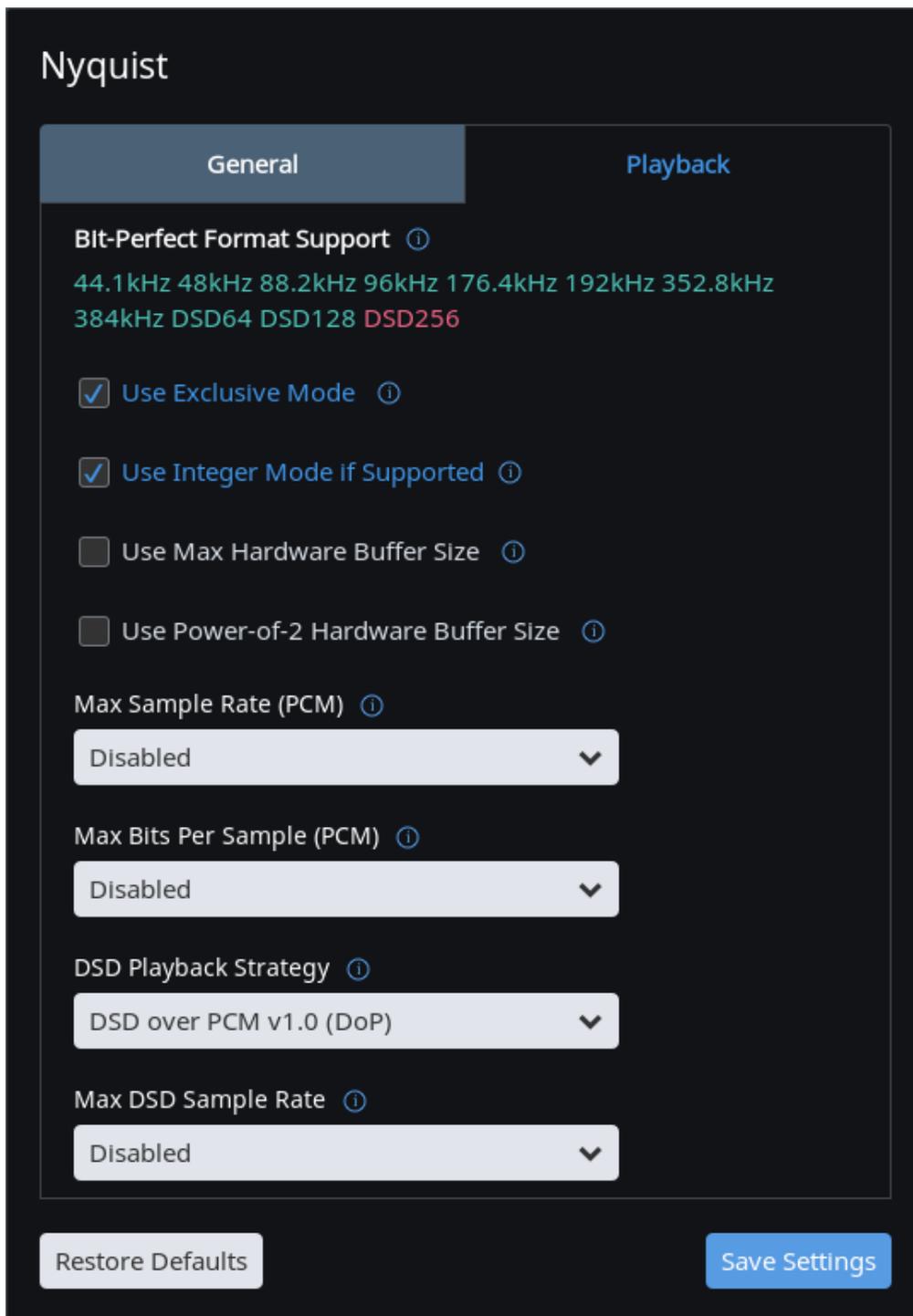
The USB input is intended to connect to a server, either Mac or PC. USB cables can have a major influence on the sound; therefore, it is advisable to use a dedicated audio cable of good quality for this input.

No Drivers are needed for Mac OSX 10.6+ and Linux with UAC2 compliant kernel.

Nyquist USB Audio 2.0 Class Driver software for Windows 7, 8, 8.1 and 10 (32 and 64bit), can be downloaded from the supplied USB stick or at www.brinkmann-audio.com.



Roon device selection, when connected to a Mac



Recommended device settings running Roon on a Mac

How to download and install the Windows driver: connect the PC to **Nyquist** via USB cable, either connect the USB stick to the PC or open the file at www.brinkmann-audio.com, click on the Nyquist driver file and chose save file, follow the installation instructions and chose install USB Audio 2.0 Class Driver, once the driver is installed, **Nyquist** should be listed as playback medium in the playback software of your choice and can be used.

These instructions reflect current software. There might be future changes that require a different driver or updated software. You can find updated information on www.brinkmann-audio.com or send an email to info@brinkmann-audio.com with any questions.

Accepted USB formats and sample rates:

PCM (Pulse Code Modulated):

44.1Khz, 48Khz, 88.2Khz, 96Khz 176.4Khz, 192Khz, 352.8Khz and 384Khz

MQA (Master Quality Authenticated):

All available MQA playback formats.

Please visit www.mqa.co.uk for more information on this format.

Nyquist includes MQA (Master Quality Authenticated) technology, which enables you to play back MQA audio files and streams, delivering the sound of the original master recording.

'MQA' or 'MQA.' indicates that the unit is decoding and playing an MQA stream or file, and denotes provenance to ensure that the sound is identical to that of the source material. 'MQA.' (Full stop after MQA) indicates it is playing an MQA Studio file, which has either been approved in the studio by the artist/producer or has been verified by the copyright owner.

The MQA logo is a trade mark of MQA Limited. © MQA Limited 2016

DSD (Direct-Stream Digital):

DoP (e.g. Mac): DSD64 and DSD128

Native (e.g. Windows): DSD64, DSD128, and DSD256

STREAMING

Accepted Streaming formats and sample rates:

PCM (Pulse Code Modulated):

44.1Khz, 48Khz, 88.2Khz, 96Khz 176.4Khz and 192Khz

MQA (Master Quality Authenticated):

All available MQA playback formats.

Nyquist includes MQA technology, which enables you to play back MQA audio files and streams, delivering the sound of the original master recording.

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DSD (Direct-Stream Digital):

DSD64

To use Nyquist for streaming, the Ethernet plug needs to be connected to your home router through at least a CAT5 (better CAT7) Ethernet cable. Nyquist automatically connects via DHCP to your network (Network settings can be changed with MConnect's MControl app).

Once connected, **Nyquist** should be visible on the network to a controller that is also on the home network via WIFI or Ethernet cable.

Nyquist supports streaming of PCM data up to 192kHz, MQA up to 384kHz and DSD 64.

Nyquist supports streaming from the following sources:

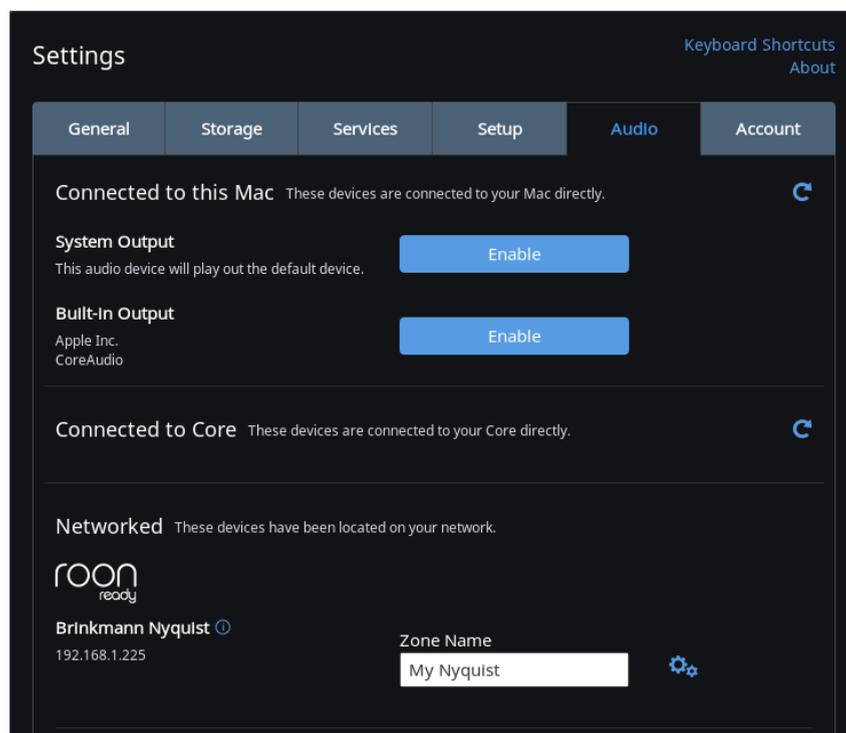
- Roon Core servers (controlled via the Roon app)
- UPnP servers (controlled via the MControl app)
- Tidal High Fidelity Music Streaming (controlled via the MControl app or the Roon app)
- Deezer Streaming Service (controlled via the MControl app)
- vTuner Internet Radio (controlled via the MControl app)

We recommend MConnect's MControl app as mobile UPnP controller and for access to vTuner, Tidal or Deezer. The App is freely available for both Android and Apple tablets and phones. Roon Core servers can be accessed via the Roon app.

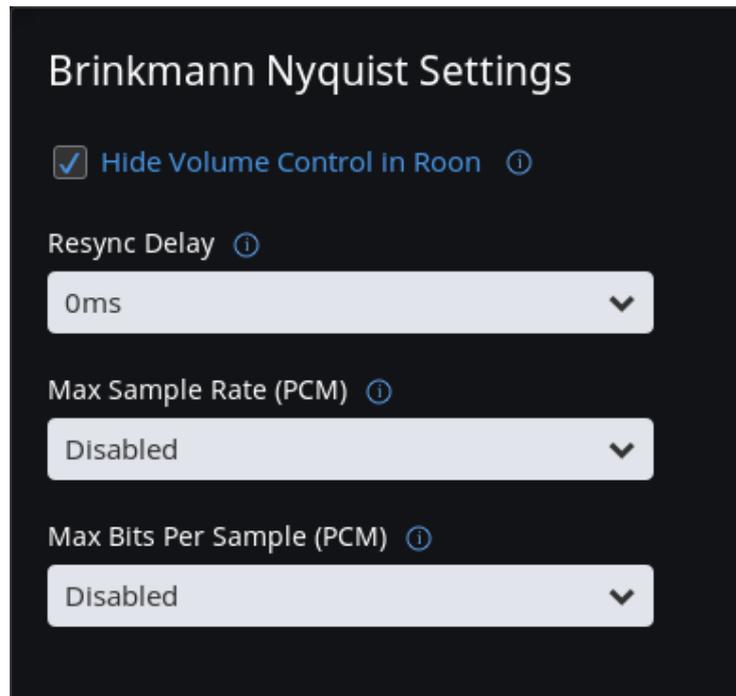
Roon

For the best streaming experience, we recommend Roon. **Nyquist** is a RoonReady™ network player. Please visit the Roon Website for further details on how to setup the system www.roonlabs.com. Roon will automatically discover **Nyquist** on your network. There are no specific settings necessary to support **Nyquist**. You need an account to use Roon.

Roon also integrates Tidal High Fidelity Music Streaming and files from connected servers or hard drives.

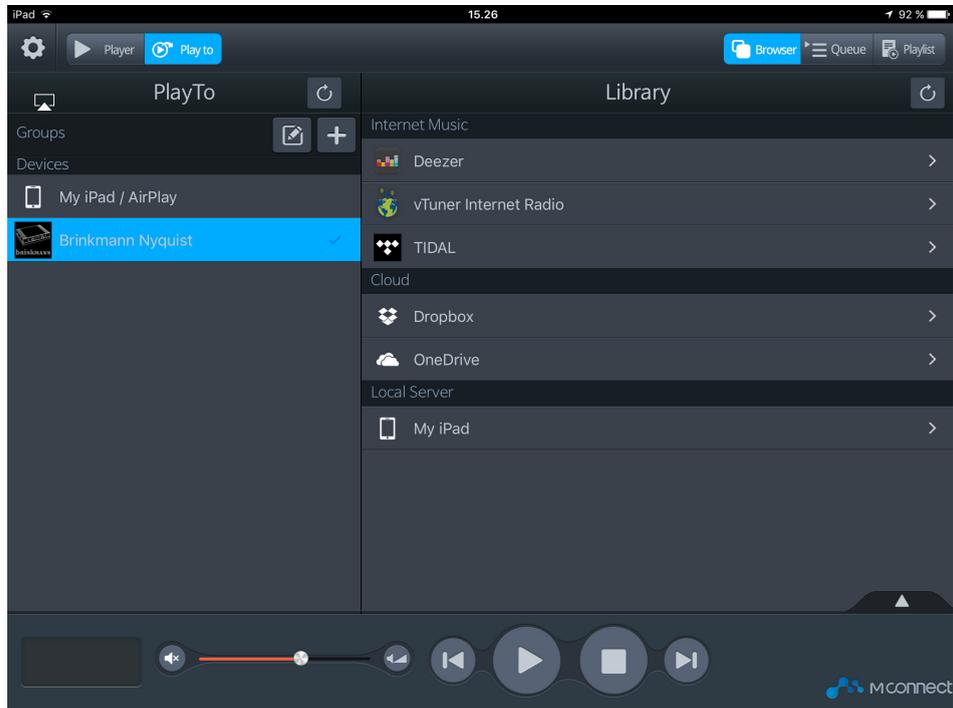


Nyquist will appear as Roon ready device under „Networked“

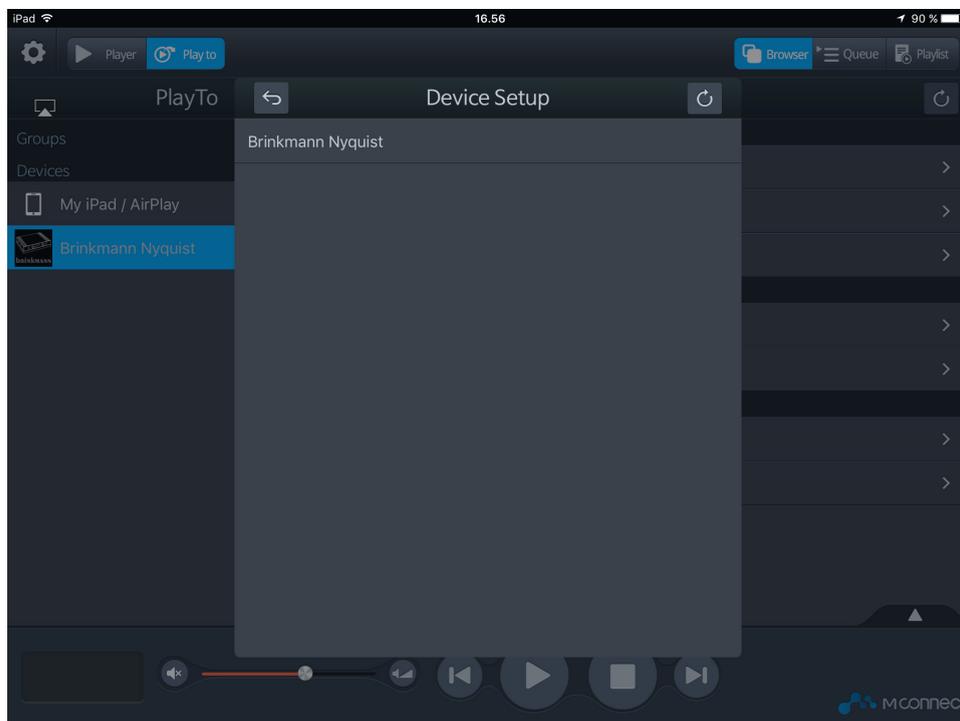


There is no need for any settings. You might want to hide the volume control, as it has no function.

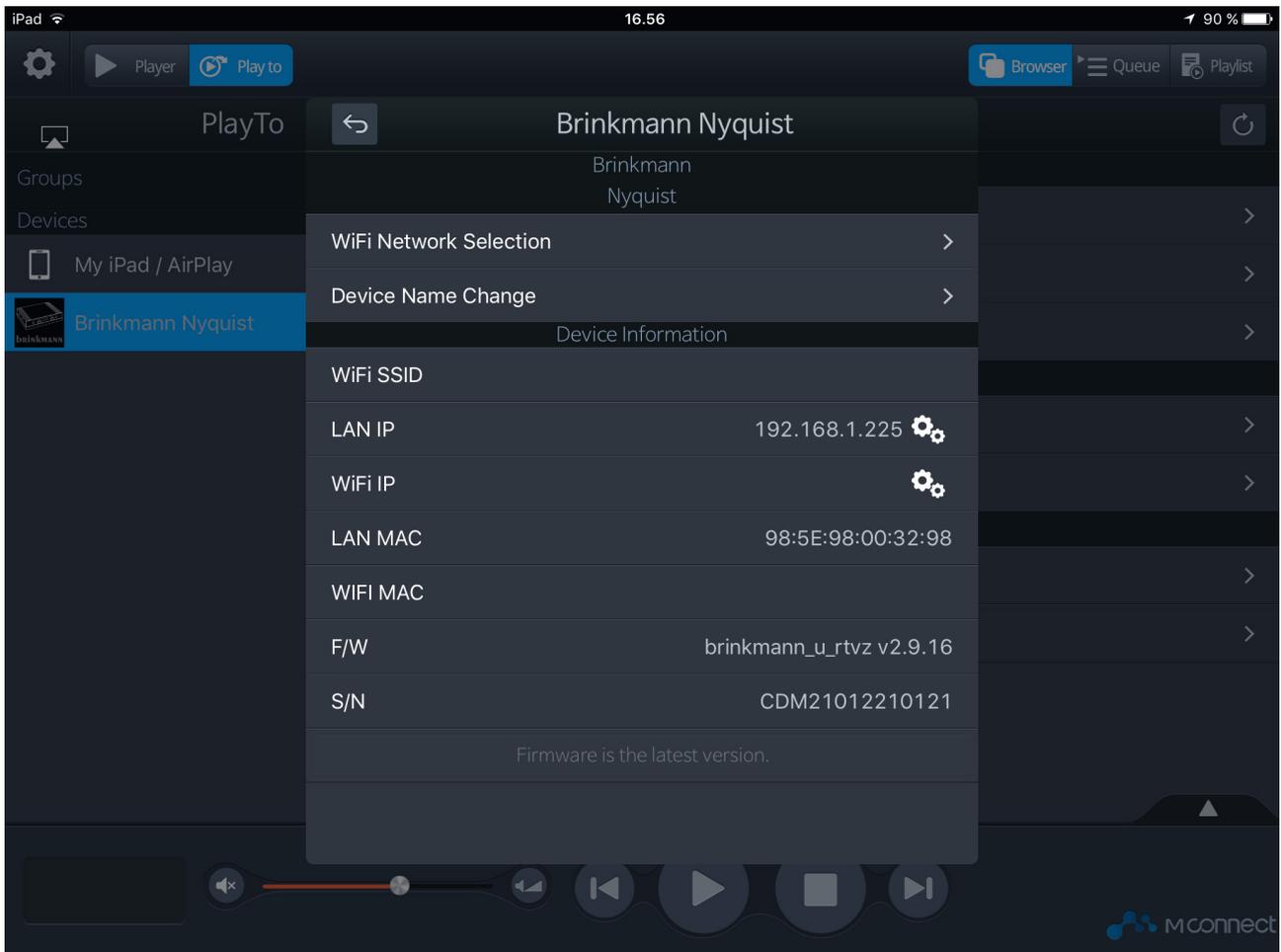
mControl App



Select Nyquist as Playback device



To change settings or update the firmware of Nyquist's Streaming module, select Nyquist in Device Setup



Device information and option to update the firmware when available

UPnP

Nyquist provides network connectivity to a media server or NAS. **Nyquist** is a UPnP compatible device, requiring a UPnP server and controller to stream. A program like JRiver Media Center, available on both Mac and Windows platforms, can be configured to act as both a UPnP server and Controller. Many NAS (Network Attached Storage) come with UPnP servers built into their operating systems. If you use a NAS, you will control the NAS and **Nyquist** using a UPnP controller. As controller, we recommend MConnect's MControl app, which is freely available for Android and Apple tablets and phones.

To select the NAS or UPnP server of any type, in MControl, touch the "Browser" icon. Choose the server to which you wish to connect.

Tidal and Deezer

Tidal and Deezer streaming services are accessible via MConnect's MControl app. This allows direct streaming of Tidal and Deezer music to **Nyquist** via the Internet. You need a Tidal or Deezer account to access the streaming services.

vTuner

MConnect's MControl app also offers access to vTuner Internet Radio. This allows you to listen to your favorite radio station via **Nyquist**. In MControl, touch the "Browser" icon to select vTuner Internet Radio.

TECHNICAL SPECIFICATIONS

Inputs: USB 2.0, SPDIF, AES-EBU, TOSLINK, RJ45 ETHERNET

Formats: MQA and PCM up to 384 kHz (DXD), DSD 64 and 128 via DoP (DSD over PCM), DSD 256 natively

Digital module upgradable

THD/IM distortion: <0.01%

S/N ratio: >100 dBA

Gain adjustment: -20 to +10 dB

Output voltage: maximum ± 12 V symmetrical

Output impedance: +/-10 ohms symmetrical

Headphone output: 30-600 ohms

Dimensions (WxHxD): 420 x 95 x 310 mm (with granite base); power supply 120 x 80 x 160 mm

Weight: 12 kg; granite base 12 kg; power supply 3.2 kg

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