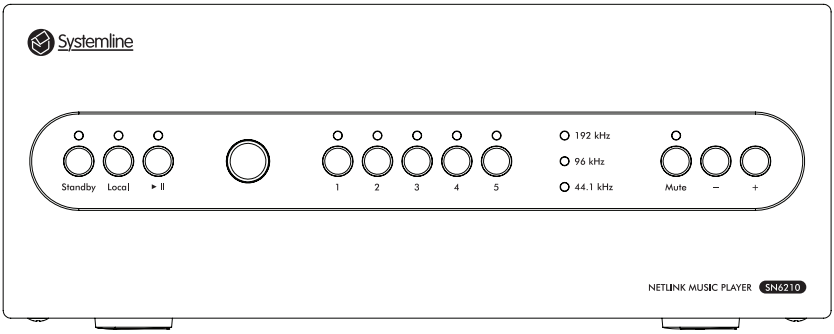
Systemline 7

# Instruction manual




# NetLink Music Player

Systemline 7 Music Player

SN6210

## Important safety instructions

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarised or grounding-type plug. A polarised plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer

12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally or has been dropped.

**WARNINGS**

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

This apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.

Apparatus with CLASS1 construction shall be connected to a MAINS socket outlet with a protective earthing connection.

## Instructions de sécurité importantes

1. Veuillez lire ces instructions.

2. Veuillez conserver ces instructions.

3. Veuillez prendre connaissance de tous les avertissements.

4. Veuillez suivre toutes les instructions.

5. N'utilisez pas cet appareil a proximite de l'eau.

6. Nettoyez uniquement avec un chiffon sec.

7. N'obstruez pas les grilles de ventilation. Suivez attentivement les instructions du fabricant lors de l'installation.

8. N'installez pas cet appareil a proximite d'une source de chaleur telle que des radiateurs, des bouches d'air chaud, des fours, ou tout autre appareil (y compris des amplificateurs) produisant de la chaleur.

9. Ne supprimez pas la securite apportee par la prise polarisee ou de type B. Une prise polarisee possede deux broches, dont une plus large que l'autre. Une prise de type B possede deux broches et une fiche terre. La broche la plus large ou la fiche terre sont la pour votre securite. Si la prise fournie ne convient pas, adressez-vous a un electricien pour une mise aux normes de votre installation electrique.

10. Evitez de marcher sur le cordon d'alimentation ou de le pincer, en particulier, a l'extremite du cordon, de la prise et a la sortie de l'appareil.

11. Utilisez uniquement des accessoires specifies par le fabricant.

12. Utilisez uniquement les chariots, pieds, tripodes, supports ou les tables recommandes par le fabricant ou vendus avec l'appareil. Si vous utilisez un chariot, faites tres attention lors du transport de l'appareil et evitez de le faire tomber pour ne pas vous blesser.

13. Debranchez cet appareil en cas d'orage ou lorsque vous ne vous en servez pas pendant une periode prolongee.

14. Pour toute reparation, adressez-vous a un professionnel. Faites reparer cet appareil pour des dommages de n'importe quelle nature : cordon d'alimentation abime, liquide ou objet introduit dans l'appareil, exposition a la pluie ou a l'humidite, fonctionnement inhabituel, chutes diverses.

**AVERTISSEMENT**

Afin de diminuer les risques d'incendie ou de choc electrique, conservez cet appareil a l'abri de la pluie et de l'humidite.

Evitez toute eclaboussure et ne posez pas d'objets contenant des liquides, comme des vases, sur cet appareil.

L'appareil de construction de CLASS1 doit être connecté à une prise secteur dotée d'une protection par mise à la terre.

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## 1.0 NetLink pack contents

1.1 NetLink x 1
1.2 Power supply 12v 2 amp x 1
1.3 Instruction book x 1

## 2.0 Introduction

The NetLink Music Player uniquely integrates a home cinema system or high quality HIFI system with the Systemline 7 multi-room installation. NetLink can be configured to control a connected AV Receiver so that it switches it on, selects the correct input and controls the volume using the S7 App. In addition to this NetLink can also be used as a standalone system, connected to a power amplifier (such as S7 NetPower) and S7 Server. NetLink is able to provide a very high quality digital output with resolution up to 24bit 192khz making it ideal as a very easy to use high quality music streaming source.

NetLink can receive a music stream from the S7 NetServer over the network; however it is highly recommend that a DigiLink (SN1300) is used for prefect reliability as this does not use the network at all to stream audio. DigiLink is a USB - CAT6 converter located near the server and transmits digital audio along a dedicated cable.

## 3.0 Compatible AVR Receivers

Below is a list of supported AV Receivers. Appendix 1.0 lists all model numbers and control protocol documents that NetLink has used to control each brand. It is recommended that you test the control of your AVR first, before installation.

**Arcam**
AVR 380/390/450/550/750/850/AV860/SR250 (Tested with AVR750)
RS232 and IP Control

**Denon**
AVR-X Series (Tested with AVR-X3200W)
RS232 and IP Control

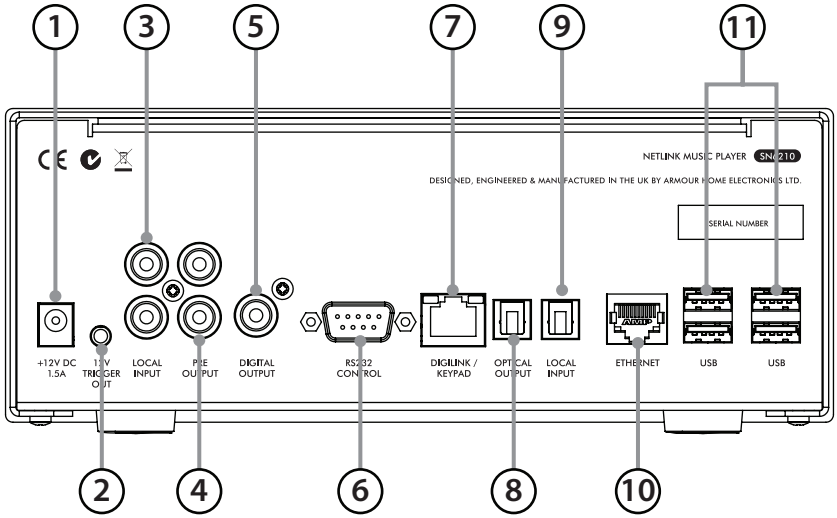
**Marantz**
SR Series (Tested with SR5009, SR5010)
RS232 and IP Control

**Onkyo**
TX Series (Tested with TX-NR656)
IP Control Only

**NAD**
T Series Receivers T787, T777, T758, T748 (Tested with T787)
RS232 and IP Control

**Yamaha**
RX-V Series (Tested with RX-V677)
IP Control Only

## 4.0 NetLink Rear Panel




*1. Power Input*

NetLink requires a 12v 2amp power supply, supplied.

*2. 12 Volt DC Trigger Output*

Recommended for use with a power amplifier that has a 12volt DC trigger input such as the NetPower, when NetLink turns on it will power up a compatible power amplifier by presenting 12v.

*3. Local Analogue Input*

Use this if you have an analogue audio source located near NetLink that you want to play through the NetLink zone.

*4. Analogue Pre out*

Used when connecting to an analogue power/integrated amplifier.

*5. Digital Audio Out (upto 192/24)*

Used when connecting a home cinema or digital integrated amplifier.

*6. RS232 Connection*

Used when integrating a Home Cinema or digital integrated amplifier that has RS232 control.

*7. Digilink/Keypad Input*

Connection for DigiLink which enables streaming audio from the server directly over cat5/6 without touching the network for audio (Highly recommended).
If DigiLink is not used then a KPS11 keypad can be plugged in here.

*8. Optical Output (upto 96/24)*

Used when connecting a home cinema or digital integrated amplifier.

*9. Optical Input*

Used if you have an optical digital source located near NetLink (such as TV) that you want to be able to play through the NetLink zone.

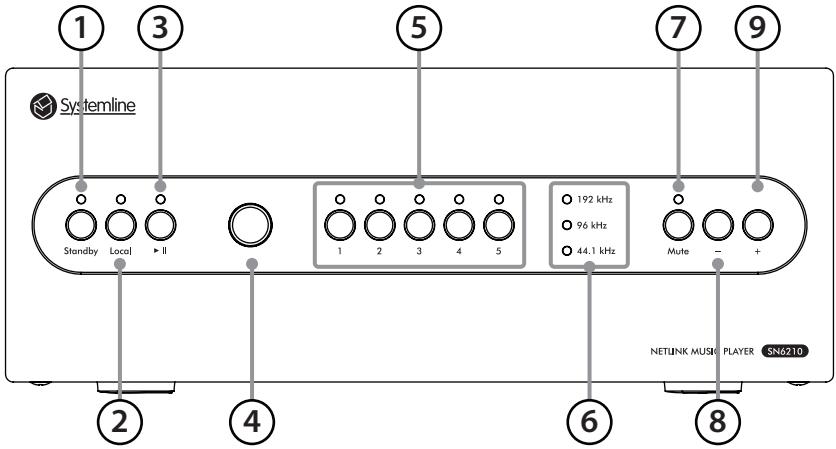
*10. Network LAN (T568B)*

RJ45 connection for network this must be used for control via your S7 App.

*11. USB*

These are for future use only.

## 5.0 NetLink Front Panel




*1. Standby*

Pressing will turn NetLink in and out of standby, and will also control a compatible AVR's standby state via IP or RS232. Holding down the standby button for 3 seconds will put NetLink into deep sleep mode, and can only be reactivated by pressing standby as network and keypad control is disabled in this state. Whilst the wake up process is occurring the red light will flash.

*2. Local*

Pressing local will select either the optical or RCA analogue inputs on the rear, and will illuminate a green LED

*3. Play/Pause*

Will pause/play currently selected track.

*4. IR Sensor*

NetLink can be used with a learning or RC5 code infra-red remote control. By default the IR receiver is switched off, it can be enabled by checking the box in the 'Zone Setup' web page. The RC5 IR control code specification can be found in section 11.0

*5. Pre-sets/Favourites*

These will select favourites stored on the S7 server. By default these buttons select favourites 1-5 but can be configured to select any favourite number by editing then on the 'Zone Setup' webpage.

*6. Input sample rate*

Shows the sample rate that it being played from the S7 NetServer – The NetLink will automatically upgrade all sample rates to 192kHz even if the input sample rate is 44.1kHz.

*7. Mute*

Puts the zone volume to 0.

*8. Volume Up*

Adjusts the zone volume up (Level will be shown in the app).

*9. Volume Down*

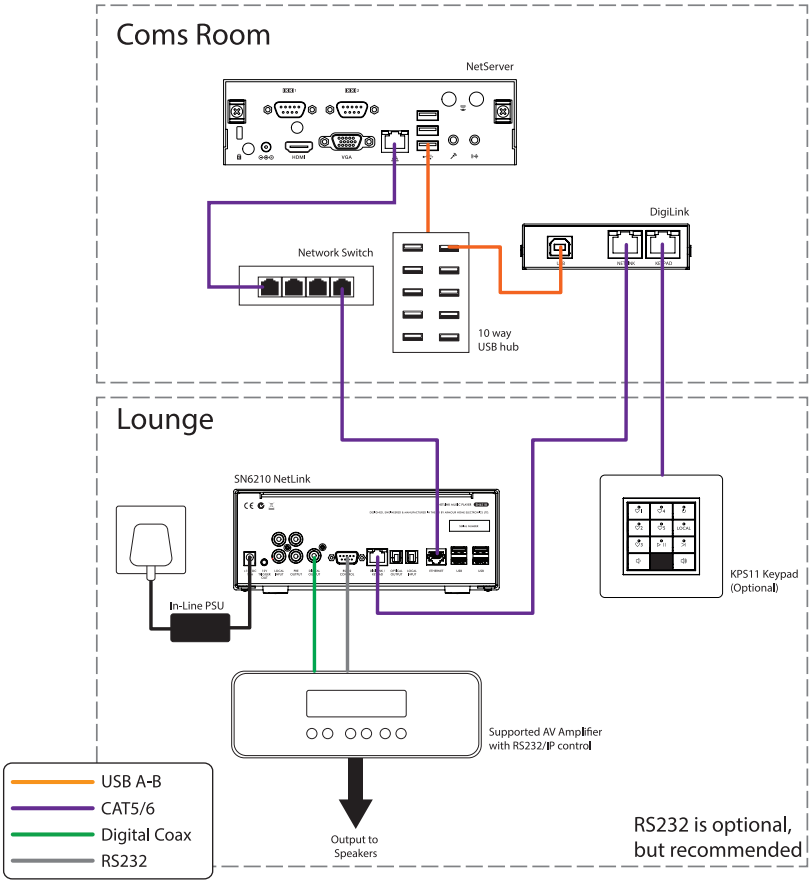
Adjusts the zone volume down (Level will be shown in the app).

## 6.0 Wiring Diagram

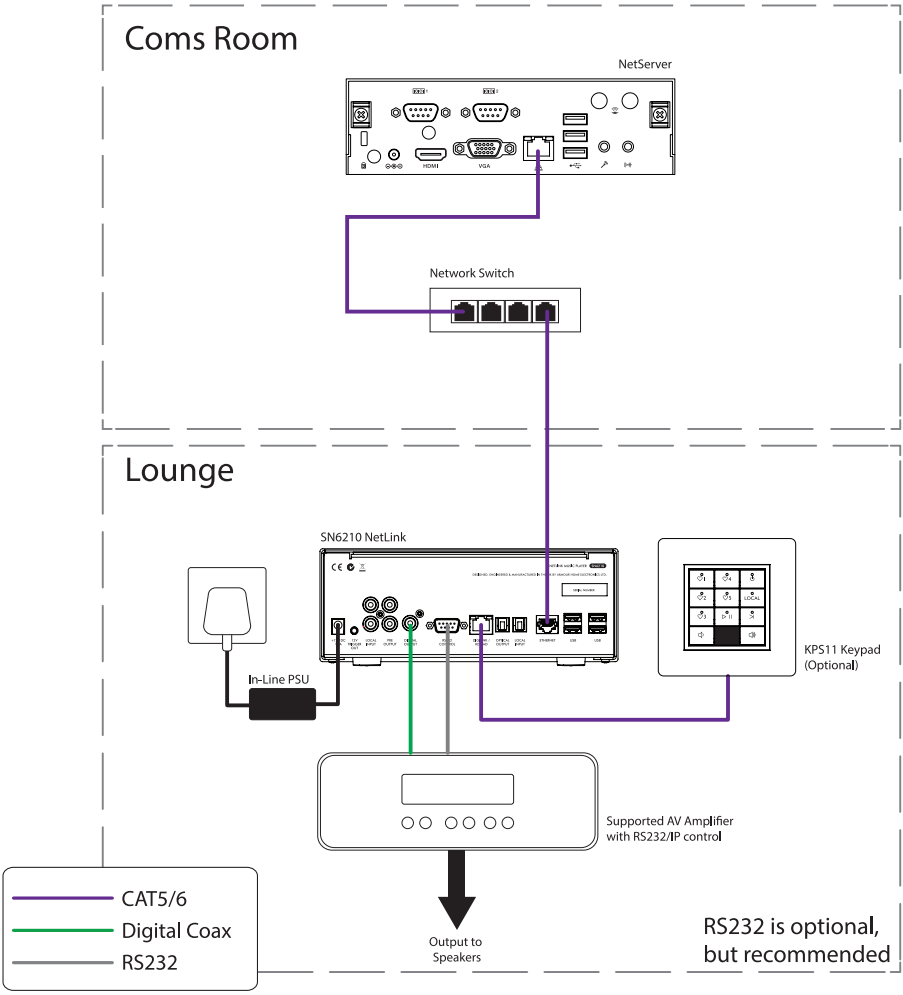
### 6.1 Wiring Diagram with DigiLink and Keypad

It is recommended that two CAT5/6 cables are run from the server room to NetLink (if being located in the zone), one for network control and one for audio via DigiLink. This will ensure that NetLink receives its audio stream directly and not via the network. Alternatively NetLink can be used with only one CAT5/6 cable connected to the network, and it will receive the audio stream and control all via Ethernet. NetLink can also have a maximum of 4 keypads installed if required. These use CAT5/6 cable routed via DigiLink, or can be wired directly if DigiLink is not being used.

We highly recommend using RS232 to control the AV Receiver if available to avoid any Ethernet connection issues which may arise, and also avoids having to give the AVR a fixed IP address. IP control can be used for those AVRs thant do not have any RS232 connection.



### 6.2 Wiring Diagram with Keypad (without DigiLink)

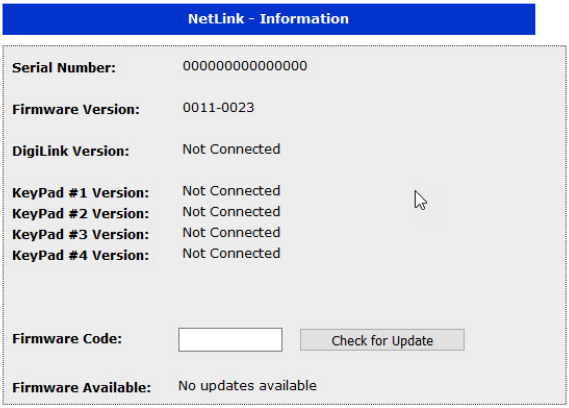



## 7.0 NetLink Setup - First Steps Connections

1. Insert (RJ45) LAN connection from network switch/router.
2. Insert audio connection to AV amplifier (Digital coax preferred) make a note of which input you have used on the AV Receiver, requires a digital audio cable not supplied.
3. Connect RS232 cable from NetLink to AV Amplifier/Receiver (recommended).
4. Connect up power.
5. Wait for standby light to go solid – 15-20 seconds.

# 8.0 NetLink Configuration – Quick Start

1. Open a Web browser on a PC or Mac and type htttp://NetLink to reveal the Overview page.




## 8.1 Source Setup

1. *Select Source Setup from the left menu you will be prompted for a username and password.*

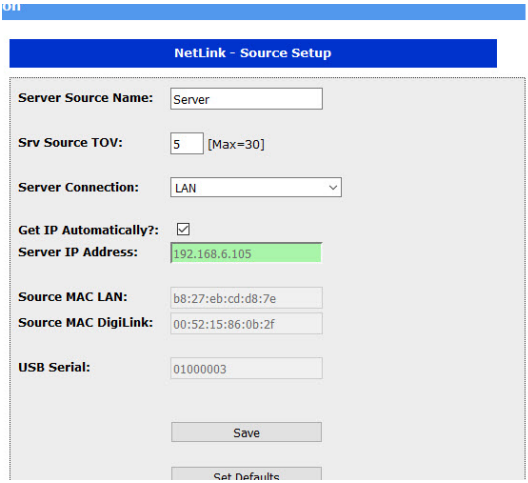
   **Username: admin**

   **Password: password**

   These can be changed in Factory setup if needed

## 8.2 Server Setup

1. *Select the server connection type from the drop down box:*




***LAN*** = Receives audio stream from the network connection to the server

***DIGILINK*** = Receives audio stream via a separate cable connected to a DigiLink

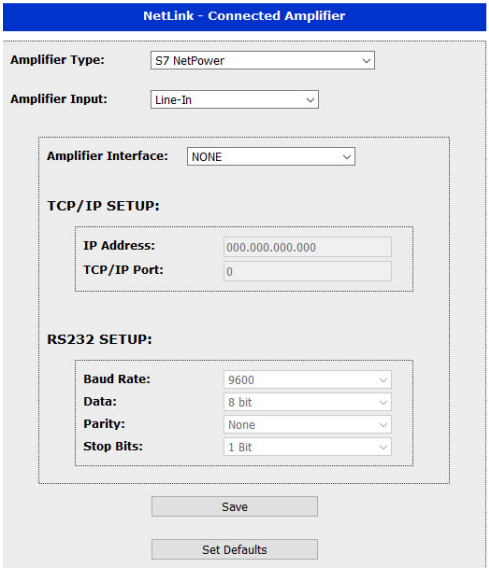
2. *If the server is on and NetLink connected to the network, the server IP address should be inserted and highlighted in green showing NetLink has connected. If the IP address is not shown, or the box is red, refer to the detailed instructions in section 9.3.*

3. *Press the Save button*

### 8.3 Connected Amplifier

1. Select the connected amplifier you are using from the drop down box.

   S7 NetPower = Power amplifier or any non-supported amplifier, analogue outputs will be variable, digital outputs are fixed.




2. Select the audio amplifier input that you have plugged NetLink into on your AV Amplifier (This might need to be configured in your AV Amplifier setup)

3. Select the correct method of communication (RS232 recommended), the correct RS232 settings should be applied for the amplifier type selected in part 8.6.

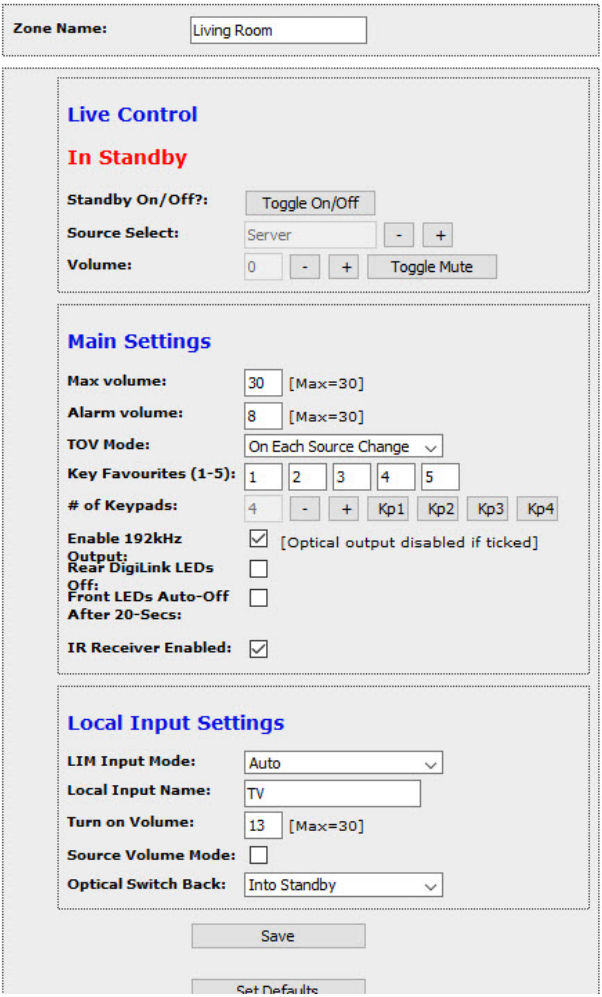
4. Volume Range (Onkyo only) Select the correct number of steps for the Onkyo AVR, increments of 1.0 or 0.5 depending on the model.

5. If using IP control put IP address and TCP/IP port in the drop down box for the AV Amplifier If you have selected the correct IP address for the AV amplifier the box will go green.

6. Press Save.

### 8.4 Zone Setup

1. Select 'Zone Setup' and enter the name of the NetLink zone and press 'Save'.
2. Initial Setup is complete, use the S7 App to discover the zone, select music and enjoy.




## 9.0 NetLink Further Configuration Options

Overview:

1. **Serial Number:** *Displays the NetLink serial number, also found on the back of the NetLink.*
2. **Firmware Version:** *Displays the current hardware and firmware version:*

   0011 – 0023 has hardware 0011 and firmware 0023.
3. **DigiLink Version:** *Displays the firmware version of a connected DigiLink.*
4. **Keypad # Version:** *Displays the firmware versions of up to four connected keypads.*

5. **Firmware Code:** *NetLink will automatically check the Systemline Cloud Server for new firmware and inform the user via the App. It is possible to manually enter a code here to force an update to firmware not posted on the server.*

## 9.1 Factory Setup

1. **MAC Address:** This shows the physical MAC address of the wired Ethernet port on NetLink, it cannot be changed.
2. **TCP Port:** The default TCP/IP port for controlling NetLink from the S7 App or other 3rd party control systems is 9760. You can select a different port but this will prevent the S7 App from controlling the NetLink
3. **Additional Web Port:** NetLink uses port 80 for its web page. You can add one additional web port, if you wish to use port forwarding to multiple devices.
4. **Hostname:** Each NetLink hostname is NetLink - ****** where it inserts the 6 digits of the physical MAC address
5. **User Name:** The default is 'admin' you can insert an alternative if you wish and press 'Save'
6. **Password:** The default password is 'Password' but you can enter an alternative and press 'Save'
7. **Set Factory Defaults:** This will reset the NetLink to all default settings and reboot
8. **Reboot:** Will reboot the NetLink

## 9.2 Network Setup

1. **DHCP Enabled:** If checked NetLink will obtain an IP address automatically from the DHCP Server running on the Router. Uncheck this box if you wish to use a fixed IP address
2. **IP Address:** Displays the IP address, or allows you to add a fixed address
3. **Subnet Mask:** Displays the subnet mask, or allows you to define it with fixed IP
4. **Gateway:** Displays the Gateway address, usually the router, or allows you to define the gateway address.
5. **Set Defaults:** Will revert NetLink back to DHCP

## 9.3 Source Setup

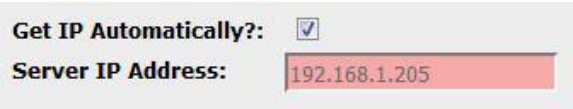
1. **Server Source Name:** You can change the name of the server source here, it appears as a source name on the s7 App in 'Inputs'
2. **Srv Source TOV:** This allows you to set the turn on volume for the server, only available in NetPower mode, analogue output.
3. **Server Connection:** This allows you to select the server audio stream from either Local Area Network or DigiLink. Selecting DigiLink will disable the built in software player and revert to the USB player listed in the server when DigiLink is connected.
4. **Get IP Automatically?:** When checked NetLink will scan the network for an S7 server with host name:

   netmusic

   s7_server/s7server

If it finds an S7 server with these host names, it will make a TCP/IP connection and you will see the IP address in a green box

If the server is unavailable or switched off, the box will turn red:




NetLink will attempt to connect back to the server.

If you wish to use NetLink with another non Systemline Logitech Media Server (LMS), then you can uncheck the 'Get Server IP Automatically?' box and manually enter the IP address of the LMS. NetLink will then operate with the manually added LMS.

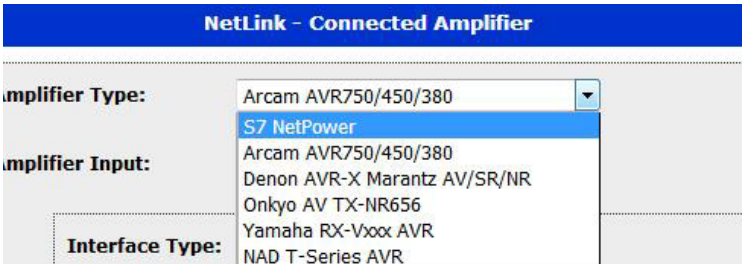
5. **Source MAC LAN:** This displays the MAC address of NetLink which will also be the software player MAC when the server connection is LAN mode

6. **Source MAC DigiLink:** This will display the software player MAC address as allocated by the server when a DigiLink is plugged in. NetLink will obtain this MAC address automatically when DigiLink is plugged in.

7. **USB Serial:** This displays the unique USB serial number of a connected DigiLink

## 9.4 Connected Amplifier

1. **Amplifier Type:** You can select the AVR or Power Amplifier mode here from the drop down list:




S7 NetPower – Use this mode with the Systemline 7 NetPower amplifier, or any other power amplifier or non-supported AVR. The analogue outputs will be variable with volume control; the digital outputs will be fixed. You can use the 12v trigger to switch on the power amplifier.

**Arcam** – Supported models are AVR380/390/450/550/750/850/AV860/SR250

**Denon AVR-X Marantz AV/SR/NR** – Denon and Marantz use the same control protocol. There are many models and so a definitive list cannot be produced. NetLink is tested using Denon AVR-X3200W, Marantz SR5009 and Marantz SR5010

**Onkyo** – There are many models available, so a definitive list cannot be produced, it is tested with TX-NR656

**Yamaha** – Many models are available, NetLink is tested with RX-V677

**NAD T-Series** – There have been many T-series AV Receivers produced, so a definitive list cannot be produced. NetLink is tested with T787, T785

It is highly recommended that you test the AVR compatibility with NetLink first before installation.

2. **Amplifier Input:** Select the particular audio input that you have plugged NetLink into from the drop down list. The list is different for each amplifier type and should reflect the inputs available.

3. **Interface Type:** NetLink can control the connected AVR, turn it on / off, select the correct input and control the volume in a convenient way, allowing the user to use the S7 App in the same way as any other zone. NetLink can control the AVR using RS232 (dedicated control port on the back) or IP. RS232 is recommended if available, so some AVR's only support one TCP/IP connection.

TCP/IP Setup:

4. **IP Address:** If IP interface type is selected then you must enter the IP address of the AVR. It is recommended that you give the AVR a fixed IP so this does not change.

5. **TCP/IP Port:** This will be set automatically with the selected amplifier type, but you can change this if required.

RS232 Setup:

6. **Baud Rate:** The correct RS232 baud rate will set with the selected amplifier type, but you can change this if required

## 9.5 Zone Setup

1. **Zone Name:** Insert the desired name of the Netlilnk zone

Live Control:

2. **Live control:** Used to control NetLink over the Network, Standby, Source select and volume

Main Settings:

3. **Max Volume:** You can limit the volume level that NetLink will output, analogue output only

4. **Alarm Volume:** You can set a volume that NetLink will turn on from an alarm, this can also be set from the App, applies to analogue output on NetPower mode only.

5. **TOV Mode:** Both sources can apply a turn on volume; use this drop down box to determine when the turn on volume is applied

On each source Change = TOV is applied each time the source is changed

From Standby = TOV is applied only from standby, and the current volume is maintained when switching sources.

6. **Key Favourites:** These relate to the front panel buttons and select stored favourites on the server, set by the S7 App. The favourite number selected can be adjusted by inserting the desired number.

7. **Number of Keypads:** You can select how many keypads you have connected to NetLink or DigiLink by adding them by pressing the + button. Then you need to select the keypad mode by pressing the KP button.

8. **Enable 192 kHz Output:** Tick this box if you have a AV amplifier capable of receiving a 192kHz sample rate, the coaxial digital output must be used and this option will also disable the optical output.

9. **Rear DigiLink LEDs Off:** Checking this box will switch off the LED's on the DigiLink RJ45 socket.

10. **Front LEDs Auto-Off after 20 secs:** Will turn the front LEDs off after 20sec when NetLink is in use.

11. **IR Receiver Enable:** Checking this box will enable IR control via the front panel. Keep this box unchecked (disabled) if using NetLink with AVR's using RC5 IR codes such as Arcam or Marantz.

    Local Input Settings:

    These settings really apply when using NetLink with a power amplifier, so that a TV source can be played through the speakers.

12. **LIM Input Mode:** Use the drop down options to determine how the local input will be used.

    **Disabled** = No local input, front button is disabled and no local input button will appear on the app

    **Auto** = When a local source audio signal is present, NetLink will switch to the local input. Digital optical will take priority over analogue local input

    **Digital** = Manual switching only, and digital local input only

    **Analogue** = Manual switching only, and analogue input only

13. **Local Input Name:** Enter the name of the local input eg. TV

14. **Turn On Volume:** Set the volume at which the local input will switch onto.

15. **Source Volume mode:** Check this box if the local source has its own adjustable volume, and you wish NetLink to switch to maximum volume to make use of the full range of the local source volume.

16. **Optical Switch Back:** Use the drop down box to determine what state NetLink enters when the local source is switched off.

## 10.0 Troubleshooting

***Cannot find NetLink on network:***

Try Resetting to DHCP by holding down the volume + and – buttons until you see the local light flash. Wait 30 sec then rescan the Network.

Have you given the NetLink a static IP address which is outside the range of your router or is being used by another device?

***Cannot control AV amplifier:***

Check correct AV amplifier has been chosen in 'connected amplifier' .

Check that you have the correct type of RS232 cable.

***3 white lights are flashing on the front:***

This means there is no connection to the AV amplifier check that the IP address of the AV amplifier is correctly inputted in the 'connected amplifier' Page and that the box around it is green. You may need to reboot the AVR for it to reset its IP connection socket.

***Onkyo Amplifier volume does not operate correctly***

Check that you have the correct volume settings under Volume Range for the Onkyo receiver.

# 11.0 Specifications

## 11.1 IR RC5 Code Table

| Function | IR Code RC5 | |
|---|---|---|
| | System | Command |
| Standby | 16 | 012 |
| | 16 | 013 (*LP) |
| Mute | 16 | 013 |
| Volume Up | 16 | 016 |
| Volume Down | 16 | 017 |
| Source Up | 16 | 070 |
| Source Down | 16 | 001 |
| Source 1 | 16 | 002 |
| Source 2 | 16 | 003 |
| Source 3 | 16 | 004 |
| Local | 16 | 005 |
| Off | 16 | 006 |
| 1 | 27 | 001 |
| 2 | 27 | 002 |
| 3 | 27 | 003 |
| 4 | 27 | 004 |
| 5 | 27 | 005 |
| 6 | 27 | 006 |
| 7 | 27 | 007 |
| 8 | 27 | 008 |
| 9 | 27 | 009 |
| 0 | 27 | 000 |
| Play | 27 | 053 |
| Pause | 27 | 048 |
| Stop | 27 | 054 |
| Skip Forwards | 27 | 052 |
| Skip Back | 27 | 050 |
| LIM Analogue | 27 | 067 |
| LIM Digital | 27 | 068 |
| LIM Auto | 27 | 069 |

## 11.2 Product Specifications

| Features | | |
|---|---|---|
| Audio | Network or Digilink (Optional) | 192kHz/24bit |
| Favourites/Pre-sets | Changeable in the S7 app | 5 |
| Control options | TCP/IP, RS232, S7 Keypad, IR control | |
| Compatible Receivers | Arcam, Denon, Marantz, Yamaha, Onkyo, NAD | |

| Voltage | | |
|---|---|---|
| Standby consumption | | <0.5W |
| Mains voltage | External Power supply | 12v – 1.5 amp |

| Audio | | |
|---|---|---|
| Signal / Noise ratio | A weighted ref 60kΩ | 104.6dB |
| Jitter | @96kHz | 20psec<br>108.8dB |
| Total Harmonic Distortion | 1000Hz | 0.00035% |
| Channel Separation | 1000Hz | 101.62dB |
| Frequency response | @96kHz | 12-45000Hz |

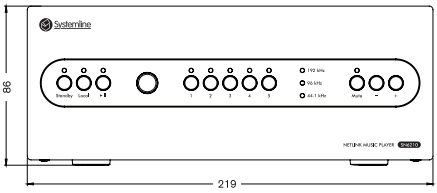
| Connections | | |
|---|---|---|
| Inputs | DigiLink (RJ45), Optical, RCA Analogue, Network (RJ45) | |
| Outputs | Optical, Coaxial, RCA Analogue | |
| Control | RS232, TCP/IP via Network, 12vDC Trigger | |

| DC Trigger | | |
|---|---|---|
| Input sensitivity | | <5V |
| Input resistance | | 10 kΩ |

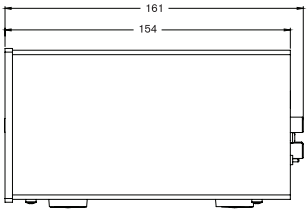
| General | | |
|---|---|---|
| Dimensions | 219x86x160mm w/h/d | |
| Net Weight | 1.75kg | |

## 11.3 Product Dimensions

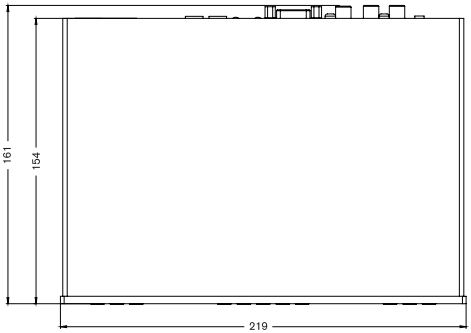
**FRONT**



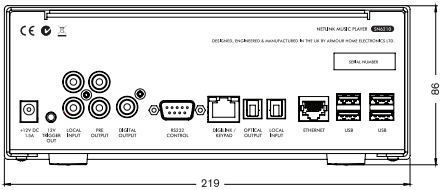

**SIDE**




**TOP**




**REAR**




*All measurements in mm

# Appendix 1: NetLink Compatible and Tested AV Receivers

| Arcam - RS232 only | (Null Modem RS232) |
|---|---|
| AVR 380 | |
| AVR 390 | |
| AVR 450 | |
| AVR 550 | |
| AVR 750 | Tested |
| AVR 850 | |
| AV860 | |
| SR250 | |

| Denon - RS232 or IP | (Straight through RS232) |
|---|---|
| AVR-X Series | |
| AVR-X3200W | Tested |

| Marantz - RS232 or IP | (Straight through RS232) |
|---|---|
| SR Series | |
| SR5009 | Tested |
| SR5010 | Tested |

| NAD - RS232 or IP | (Straight through RS232) |
|---|---|
| T787 | Tested |
| T777 | |
| T758 | |
| T748 | |

| Onkyo - IP only | |
|---|---|
| TX Series | |
| TX-NR656 | Tested |

| YAmaha - IP only | |
|---|---|
| RX-V Series | |
| RX-V677 | Tested |

Systemline

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