



Barix EXSTREAMER DIGITAL

Network audio player
for digital audio streaming in
custom home installations
and commercial applications



User Manual Version 01.02

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I Introduction

Congratulations on the purchase of your Barix Exstreamer Digital from Barix AG.

What exactly is the Barix Exstreamer? It is an audio network interface for your home stereo system that streams MP3s from your PC and radio stations from the internet.

Even though possible, the Barix Exstreamer is not meant to be plugged directly into your computer but rather into your network.

The Barix Exstreamer brings MP3 to a whole new level using sophisticated technology which we kept as affordable as possible for you.

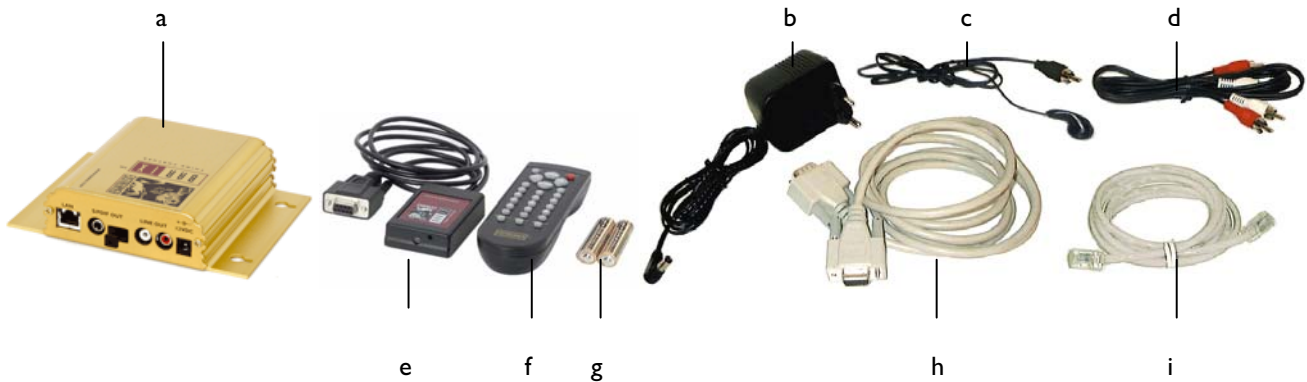
We designed this device so that you are not limited to listen to your MP3s being stuck in front of a computer or having to listen to high quality music through low quality computer speakers. The Barix Exstreamer let you enjoy your music in any room of your home.

To make this manual easier to understand we have included a dictionary at the end of the manual that links to each technical word (example: **DHCP**).

2 Features

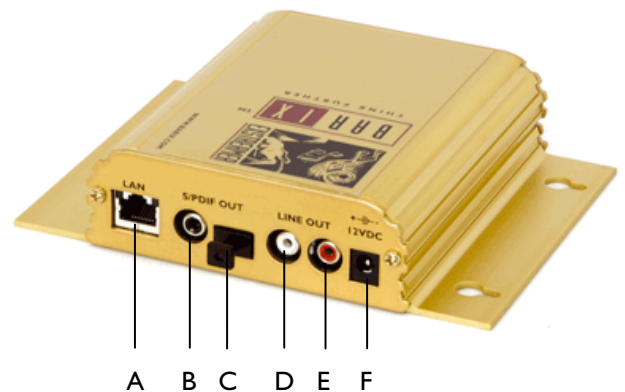
- Streams MP3s from computers, digital audio servers and the internet
- Plays MP3s from a Linux/Windows share (BETA)
- 10/100 Mbit Ethernet connection
- Plays internet radio
- Controllable via a standard web browser (PC, PDA, Web tablet), via a serial port and Infrared Remote control
- High quality RCA and headphone out
- Features **SonicIP**[®] and **IPzator**[™] technology
- Features Infrared Gateway function
- Easy integration into home automation systems

3 Package content



- | | | | | | |
|---|--------------------------|---|--------------------|---|--------------------|
| a | Barix Exstreamer Digital | d | RCA stereo cable | g | Batteries |
| b | Power supply | e | Serial IR Receiver | h | Serial cross cable |
| c | Earphone | f | IR remote control | i | Network cable |

4 Getting to know your Barix Exstreamer



- 1 DSub9 male, Serial port (RS-232)**
This port is for a serial connection to your computer.
- 2 IR IN for Infrared-Receiver**
- 3 IR OUT for Infrared-Transmitter**
- 4 Red and green LED for status display**
Red - If the light is blinking, it means the Barix Exstreamer either lost connection to or can't find the zServer.
Green - If the light is static, it means that the Exstreamer found the zServer. If the light is blinking, it means that the Barix Exstreamer is streaming.
- 5 Reset button**
If you press this button shortly it will reset the Barix Exstreamer. If you press it until the red light flashes (about 5 seconds) the device will reset to factory defaults.

- A RJ45 for LAN 10/100 Half/Full duplex**
This port is for the connection to your network.
 - B S/PDIF Coaxial digital OUT**
 - C S/PDIF Optical digital OUT**
 - D white RCA for left line output**
 - E red RCA for right line output**
- Ports **B** to **E** are for connection to your home audio equipment.
- F Power in (center: +12 VDC, ring: Ground)**
This port is for connection to the power supply (Only provided power supply should be used)

5 Installation

Once the Barix Exstreamer is connected to your network, it will automatically receive an IP address from your **DHCP** server (Internet gateways run usually a DHCP server). If no **DHCP** server can be reached, our **IPzator** function will search the network for a free IP address.

The Barix Exstreamer will announce the IP address using **SonicIP** technology.

To prepare the usage of the Barix Exstreamer we recommend to install first our free Music Server software called zServer.

5.1 Installing the Music Server program

Our free Music Server software called zServer can be downloaded from our website www.barix.com.

The music server finds your playlists and streams your locally stored MP3s to the Barix Exstreamer. If you don't have any playlists or .m3u files then the music server can create them for you.

STEP 1

The music server program requires a **Java VM plug-in**. If you don't have a Java VM plug-in or if you are not sure, then download J2SE (Version 1.3.0 or above) from www.java.sun.com and install it.

STEP 2

Download the setup file of the music server program zServer from www.exstreamer.com

STEP 3

Run the self extracting zServer.exe file. It automatically will suggest the path C:\Program Files\zServer but you can also indicate a preferred path for the installation. Select <unzip> to extract.

STEP 4

A configuration wizard should start. If not, then manually execute the file configz.bat in the installed zServer folder.

STEP 5

You will be asked for the location of your playlists. In case you already have playlists in the standard .m3u format generated by MP3 software hit the <browse> button and show the program where these playlist are. After the correct path is entered click on <set>. Skip the next step.

If you don't have any playlists created hit the <browse> button and click on the <create folder> icon to create a playlist folder for later use.

STEP 6

This is the playlist creation utility.

The first window asks for the location of your MP3s files. Hit the upper <browse> button and show the program where they are. If you click on a folder with subdirectories then all the songs in the subdirectories will become one playlist.

The second window asks for the location you want your playlists files to be stored. Hit the lower <browse> button and show the program the folder you made in step 5 since you registered that folder to the zServer as your playlist folder.

Now you can generate the playlist by pressing the <generate> button. You can generate more playlists by repeating this step. You could group music by year or mood into separate folders and then make playlists from them after you have grouped them.

The <subdirectory scan deep> tells the generator how many subdirectories will be scanned down to generate a playlist from.

If <include subdirectories> is activated then all MP3s in the current directory and all in its subdirectories will be included in that playlist.

Count of subdirectories for playlistname tells the generator how many directory names back of the current one will be used for the name of the playlist.

The separator between the directories is the separator in the playlist name between the directory and subdirectories.

STEP 7

Run the file startz.bat in the zServer folder. The music program is now ready to stream your MP3s to your Barix Exstreamer.

NOTE

The startz.bat file must always run in order for you to use the Barix Exstreamer. If you reboot your PC you will not be able to use the Barix Exstreamer until you again run the startz.bat file.

To stop the zServer simply close its window.

5.2 Connecting the Barix Exstreamer to your audio equipment

Connection to your audio equipment is possible by offering two different audio output options.

For connection to an analog home stereo system, the Barix Exstreamer features a stereo RCA output (D+E).

Simply connect the included stereo RCA cables (d) to your audio input on your stereo.

For connection to a digital home stereo system, the Barix Exstreamer features two S/PDIF outputs (B+C).

Simply connect a coaxial (output B) or an optical S/PDIF (output C) to your digital audio input on your stereo (both cables are not included).

5.3 Installing the Barix Exstreamer to your network

STEP 1

Plug the included network cable (i) into the network port of the Barix Exstreamer (a) and the other end into your hub or switch. You can also use a crossover network cable (not included) for a direct connection to your PC.

STEP 2

Plug the included earphone (c) into a RCA output (D or E) and put it in your ear.

Get the pen and paper ready to write down the IP address that will be announced in the step 5.

The announcement of the IP address is called **SonicIP**.

STEP 3

Plug the power supply (b) into the power jack (F) of the Barix Exstreamer and the other end into the power outlet of the wall.

NOTE

When power cycling the Barix Exstreamer we recommend to disconnect/connect the power supply at the wall socket. To prevent electrical overload of the device the power supply should only be plugged into the wall socket with the power supply connected to the Barix Exstreamer first.

STEP 4

The Barix Exstreamer will now search for a **DHCP** server to get an IP address and announce this address over the earphone.

Example: 192.168.0.12 (Voice: one nine two dot ...)

Make sure you write this IP address down. If no **DHCP** server is found then our **IPzator** function will search the network for a free IP address (this could take up to 5 minutes).

NOTE

Your Barix Exstreamer is now ready to start working, we recommend, however, that you set a **Static IP** address so that the IP address will not change every time you power up the Barix Exstreamer.

To set a static IP see section 8.1.

6 Controlling the Barix Exstreamer

The Barix Exstreamer has a local web server built in. You can control the Barix Exstreamer from anywhere on your network using a standard web browser (from your PC, PDA or web tablet).

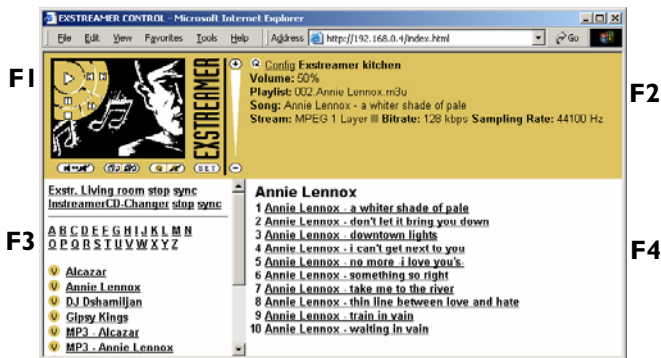
STEP 1

Open your web browser.

STEP 2

Type in the IP address of the Barix Exstreamer in the address bar then press Enter

You should now see the control panel of the Barix Exstreamer and all the playlists in the browser window:



F1 USER CONTROL INTERFACE

This frame shows the play control options.

F2 FILE INFO

This frame shows the file information of the current song. A click on the arrow picture refreshes this frame. If a name for the Barix Exstreamer was configured it will be showed on top.

F3 PLAYLISTS

This frame shows the playlists that the music server has found.

F4 SONG LIST

This frame shows the songs of the current playlist.

To start playing music, use the navigation control panel on the top left corner. To see what each button does, place the mouse cursor on top of the selected button and it will inform you of its function. Click on the playlist title to start playing it. You can also adjust the sound properties of the Barix Exstreamer by clicking on the <SET> button.

6.1 User control interface



PLAY

This action plays the media file.



NEXT TRACK

This action skips to the next media file in the playlist.



PREVIOUS TRACK

This action skips to the previous media file in the playlist.



PAUSE

This action stops playing the media file but keeps the progress at the spot it was at when the player was paused so you can continue listening from the same position.



FAST FORWARD

This action forwards within the media file.



STOP

This action stops playing the media file.



MUTE

This action mutes the audio output. Click again to activate audio or click on the volume slider.



SHUFFLE PLAY

This action automatically shuffles the media files inside a playlist and plays them randomly.



SHUFFLE PLAY OFF

This action terminates the shuffle play mode.



REPEAT

By clicking this button you can toggle between repeat song, repeat playlist or repeat off.



REPEAT OFF

This action terminates the repeat play mode.



SET

This action brings you to the audio adjustment interface.



(+)

This action increases the volume by increment.

VOLUME SLIDER

This action lets you adjust the volume level. Click closer to the + (plus) sign for higher volume or closer to the – (dash) sign for lower volume.



This action decreases the volume by increment.

EXSTREAMER

A click on the Barix Exstreamer logo will bring you to the Barix homepage. (www.barix.com)

6.2 Synchronisation control

If other Barix Exstreamer or Barix Instreamer devices are found in the network they will be displayed on top of the playlist frame.



When “Own name” is set then this name will be displayed instead of the devices IP address.

A click on the name or the IP address will bring you to the control panel of the selected device making it easy to navigate to all devices in the network.

A click on the sync link will cause the viewed Barix Exstreamer to synchronize with the selected device to allow both devices to play the same sound at the same time. In other words: While viewing the control panel of **Exstr. Living room**, clicking the **Exstreamer kitchen**’s “sync” link will make **Exstr. Living room** a sync slave. Control of the sound that both play is possible only on **Exstreamer kitchen** which becomes the sync master.



Once synchronized the name or the IP address of the sync master is displayed in the song list frame:

To stop the synchronization click on the “stop” link.

To control the sync master click on the name of the device you have synchronized to.

When viewing the control panel of a sync master clicking any stop link will cancel the synchronization to all sync slaves and will also stop the playback on the sync master.

6.3 Playlists

In the playlist frame you can select the playlist you would like to listen to.



A click on the playlist starts playing the selected playlist immediately

A click on the symbol to the left of the playlist gives you a preview of the songs in the Songlist frame.

A click on one of the alphabetical letters on top creates a filtered list that only shows the playlists that start with the selected letter.

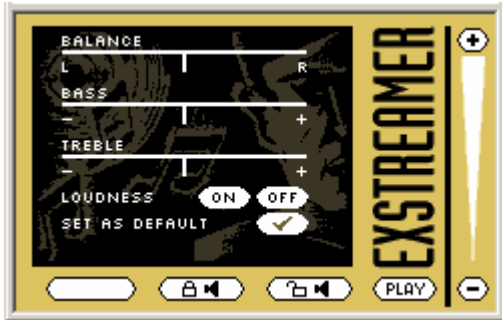
The Barix Exstreamer only can show a few playlists at a time. To see the rest of them click on “...next playlists...”, “...previous playlists...” or “top”.

If there is more than one Barix Exstreamer in your network and all of them have names, this names will be showed on top of the playlists. A click on one of the names moves you direct to the control page of the selected Barix Exstreamer.

6.4 Audio adjustment interface



Click on the SET button in the control interface to switch to the audio adjustment interface:



BALANCE

This action adjusts the Left and Right audio balance. Click into the Balance bar to set the balance to a specific position or click <L> or <R> to move the position to the appropriate side in steps.



BASS

This action adjusts the bass level. Click into the Bass bar to set the bass to a specific level or click <+> or <-> to increment/decrement the bass level in steps.



TREBLE

This action adjust the treble level. Click into the Treble bar to set the treble to a specific level or click <+> or <-> to increment/decrement the treble level in steps.



LOUDNESS ON

This action turns on the loudness level.



LOUDNESS OFF

This action terminates the loudness level.



SET AS DEFAULT

This action saves the current settings as default. Every time you restart the Barix Exstreamer it will use these settings.



LOCK VOLUME

This action locks the volume level so it cannot be adjusted.



UNLOCK VOLUME

This action unlocks the volume level.



PLAY

This action brings you back to the user control interface.

VOLUME SLIDER

This action lets you adjust the volume level. Click closer to the + (plus) sign for higher volume or closer to the - (dash) sign for lower volume.



(+)

This action increases the volume by increment.



(-)

This action decreases the volume by increment.

EXSTREAMER

Clicking on the Barix Exstreamer logo will bring you to the Barix homepage.

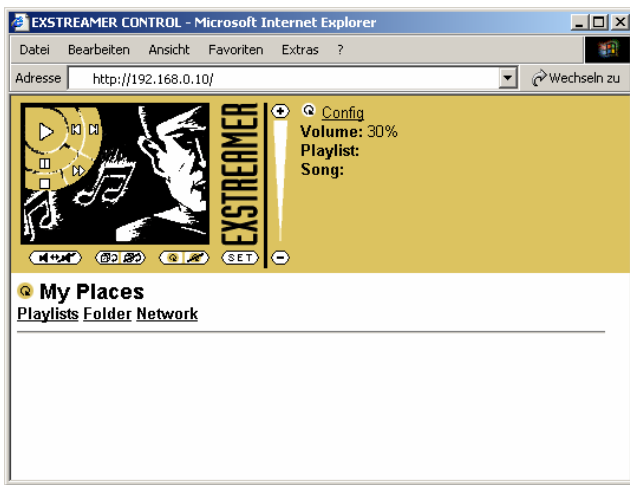
6.5 Controlling the CIFS/Samba application

This feature allows the Barix Exstreamer to use shared network resources (Samba/Linux or CIFS/Windows). In this case no zServer is needed.

Note, this feature has currently Beta status, that means the development contineous up to the next firmware versions.

Open your Browser and type the Barix Exstreamer's IP address in the address field and press Enter.

If CIFS/Samba is selected in the streaming settings (see section 7.4) the following Barix Exstreamer homepage will appear:



Clicking the "Playlists" link will display your playlists of the defined folder, if you have right place in the setup defined.



Clicking "My Places" will bring you back to your starting point. Clicking one of the playlists will show you the titels of this playlist.



- Click it to go back or the folder above
- Click it to refresh the current list
- Click it to play the song or playlist
- Click it to play the subdirectory

If a song, a playlist or a subdirectory is playing, it will appear the link "Current Playlist". Clicking this link will bring you to folder of the playing song, playlist or folder above the subdirectory.

Clicking "Folder" in the starting menu allows you to browse in the folder of the defined shared network resource.

Clicking on "Network" starts a discovering on your network, click on one of the found IP addresses to check for shared network resources on this PC. When you are browsing in a PC's share appears the link "shares" which can you bring back to the list of shares of this PC.



Note

The discovering in your network can take a while (up to few minutes).

7 Device Configuration

To enter the Barix Exstreamer configuration mode you can log onto its local web server.

STEP 1

Open your web browser

STEP 2

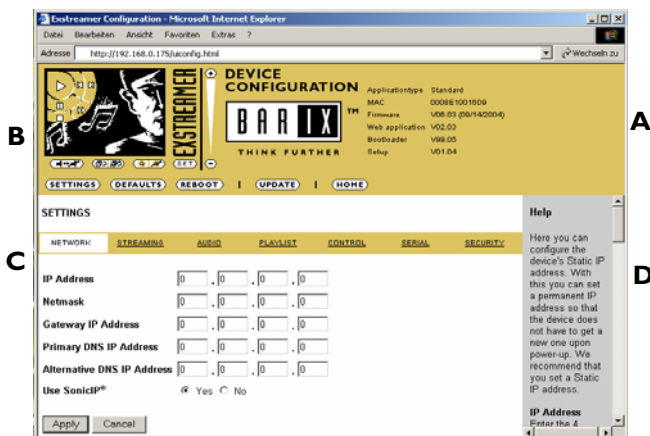
Type in the Barix Exstreamer's IP address and press Enter
Example: 192.168.0.12

STEP 3

Click on the Config link



7.1 Configuration Overview



A INFO FRAME

This frame shows the Barix Exstreamer's MAC address and the installed version of Firmware, Web application, Bootloader, Setup and Application type. The Application type can be "Standard" or "CIFS/Samba", see streaming settings.

B MENU FRAME

This frame shows the available menu icons. A click on SETTINGS brings you to the settings page when you are on the DEFAULTS, REBOOT or UPDATE page. A click on HOME brings you to the device status page.

C SETTING TABS

This bar shows the available tabs within the settings menu.

D HELP FRAME

This frame shows the help for all settings and menus.

7.2 Network settings

Here you can configure the Barix Exstreamer's **Static IP** address.

With this you can set a permanent IP address so that the device does not have to get a new one upon power-up.

We recommend that you set a **Static IP** address.

IP Address

Enter the 4 values of the desired device IP address e.g.: "0.0.0.0" for automatic discovery (DHCP, IPzator, AutoIP) "192.168.0.12" for an internal LAN

Netmask

Enter the 4 values of the desired **Static IP** e.g.: "0.0.0.0" for a default Netmask depending on the used IP Address. "255.255.255.0" for a C class network

Gateway IP Address

Enter the 4 values of the desired Gateway IP address e.g.: "0.0.0.0" for no Gateway "192.168.0.1" for a Gateway in a LAN

Primary DNS IP Address

Enter the 4 values of the desired primary DNS IP address e.g.: "0.0.0.0" for no DNS, "192.168.0.111" for a DNS

Note: A correct setting of the primary DNS IP address is needed to connect to URLs (e.g. www.radio.com).

Alternative DNS IP Address

Enter the 4 values of the desired alternative DNS IP address e.g.: "0.0.0.0" for no alternative DNS "192.168.0.111" for a DNS

Note: An alternative DNS IP address is needed in case the primary DNS is not reachable.

Use SonicIP

If set to yes, the Barix Exstreamer will announce its IP address over the audio output.

To store these settings click on Apply button. The device will restart with the new settings.

7.3 Streaming settings “Standard”

This settings adjust the way the Barix Exstreamer will get its stream.

Server settings

Press the button to change to the CIFS/Samba application.

The Barix Exstreamer basically supports 5 different operating modes. To follow step by step some example instructions see [The step by step “How To”](#) section.

Mode 0 zServer (autodetect)

In Mode 0 the Barix Exstreamer works as a Network MP3 Player using the zServer. It will automatically detect the zServer. To work correctly the following settings are needed.

Server IP Address	Always 0.0.0.0
Server Port	Always 8888
Server Path	Always /
Playlist List Path	Always /playlist.html

Mode 1 zServer (fix)

In Mode 1, the Barix Exstreamer works as a Network MP3 Player with the zServer IP address configurable. Here the user is able to manually configure the IP address of the target zServer. This Mode is used running multiple zServers on your network.

Server IP Address

Input the 4 values of the IP address of the PC on which zServer is running.

Server Port	Always 8888
Server Path	Always /
Playlist List Path	Always /playlist.html

Mode 2 Webserver

In Mode 2 the Barix Exstreamer gets the playlists and music from a standard web server.

Server IP Address

In this field you have to enter the IP address of your web server.

Server Port

In this field you have to enter the port number on which your web server is communicating (standard web servers work on port 80). A zero in this field indicates the default value port 80.

Server Path

In this field you have to enter the path where your playlists are stored on the web server. Please note that you have to put a "/" in front and at the end of the path. A single "/" in the field indicates the root directory of the Web server.
Example: /Music/

Playlist List Path

In this field you have to enter the path where your list of playlists is stored on the web server.
Example: /Music/playlist.txt

Mode 3 Streaming Puller

In Mode 3 the Barix Exstreamer works as a Streaming Puller. This enables the Barix Exstreamer to stream MP3s from most brands of MP3 jukeboxes on the market.

Server IP Address

In this field you have to enter the IP address of your MP3 server or your MP3 jukebox.

Server Port

In this field you have to enter the port number of your MP3 server or your MP3 jukebox.

Server Path

Some jukeboxes allow you to choose between different virtual streaming servers. Enter the path of the streaming server here. If the jukebox does not support this feature you then enter a single "/".

Mode 4 Streaming Receiver

In Mode 4 the Barix Exstreamer works as a simple passive Streaming Receiver. See section Receiver settings on next page. The parameters **Server IP Address**, **Server Port**, **Server Path** and **Playlist List Path** are ignored in this mode.

Receiver settings

TCP Streaming Listen Port

Use this parameter to configure the TCP streaming listen port on which the Barix Exstreamer is listening for a stream. The listener is always active in Barix Exstreamer Mode 4. In all other modes the listener is active when the Barix Exstreamer is stopped.

UDP Streaming Listen Port

Use this parameter to configure the UDP streaming listen port on which the Barix Exstreamer is listening for a stream. The listener is always active. The Barix Exstreamer has to be stopped before a stream can be sent to this port.

Sync Port

This parameter should only be changed if you use a firewall. Enter the used port number for the sync stream (between 0 and 65535). When set to 0 the port is calculated by an algorithm.

General settings

Start Threshold

The Start Threshold is the amount of bytes the Barix Exstreamer will buffer the stream before starting the playback. Valid is a value from 0 to 65535.

Buffer Underrun Mode

The Buffer Underrun Mode defines the action if the streaming buffer underruns during an open TCP connection. In this case one possibility is to *"disconnect"* the TCP connection. The other option is to *"reconnect"* again the same stream.

Buffer Underrun Timeout

The Buffer Underrun Timeout defines the amount of time in seconds since the streaming buffer is empty until the Buffer Underrun Mode action will be executed.

Number Of Reconnections

The Number Of Reconnections defines how many times a reconnection will be tried on a streaming buffer underrun if the Buffer Underrun Mode is set to *"reconnect"*. *"0"* means forever.

Connection Timeout

The Connection Timeout defines how many milliseconds to wait for a TCP streaming connection.

Init Sequence

This command sequence is always executed immediately after startup. See the Barix Exstreamer Technical Documentation for a complete list of commands.

7.4 Streaming settings "CIFS/Samba"

This feature will use a simple Windows or Linux share, no zServer is needed!

The screenshot shows the 'DEVICE CONFIGURATION' web interface for Barix Exstreamer. The top navigation bar includes 'SETTINGS', 'DEFAULTS', 'REBOOT', 'UPDATE', and 'HOME'. The 'SETTINGS' page is active, with tabs for 'NETWORK', 'STREAMING', 'AUDIO', 'PLAYLIST', 'CONTROL', 'SERIAL', and 'SECURITY'. The 'STREAMING' tab is selected, showing the following settings:

- Server:** A dropdown menu set to 'Standard' with a 'Change to' button.
- Playlists Path:** An empty text input field.
- Folder Path:** An empty text input field.
- CIFS/Samba User:** An empty text input field.
- Receiver:**
 - TCP Streaming Listen Port:** 2020
 - UDP Streaming Listen Port:** 0
 - Sync Port:** 0
- General:**
 - Start Threshold:** 60000
 - Buffer Underrun Mode:** reconnect (dropdown) for TCP
 - Buffer Underrun Timeout:** 20 sec, for TCP
 - Number Of Reconnections:** 0 for TCP
 - Connection Timeout:** 10000 msec, for TCP
 - Init Sequence:** An empty text input field.

At the bottom of the settings page are 'Apply' and 'Cancel' buttons.

Server settings

Press the button to change to the "Standard" application.

Playlists Path

This is the path to the share for the playlists directory. Example: //192.168.2.10/media/playlists

Folder Path

This is the path to the share for the folder directory. Example: //192.168.2.10/media

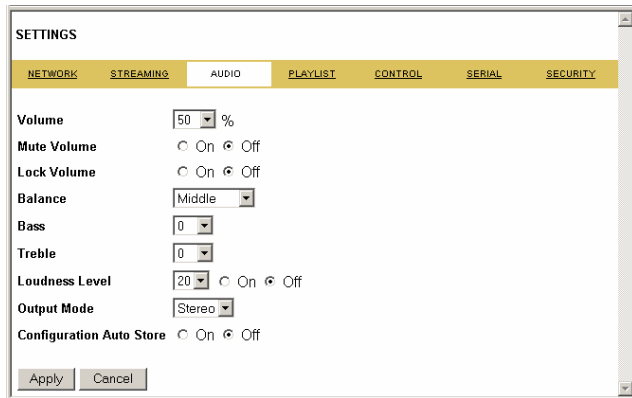
CIFS/Samba User

Set this parameter to the user name that has at least read access to the shares of the Playlists Path and Folder Path. Password authentication isn't supported currently.

The Receiver settings and the General setting are equal to the application type "Standard"!

7.5 Audio settings

You only need to adjust this section if you would like your Barix Exstreamer to start up with custom sound adjustments. For example you would like your Barix Exstreamer always to start with maximum bass, than you could adjust that here to become default. These adjustments will be stored even if the unit loses power.



Volume

Choose between "0%" and "100%" in 5% steps.

Mute Volume

Choose "On" to mute the sound output at startup else choose "Off".

Lock Volume

Choose "On" to lock volume on the control interface. This denies the volume control by the user. "Off" allows free volume control.

Balance

Choose between "Left max." and "Right max." (L10..R10).

Bass

Choose between "-10" and "10".

Treble

Choose between "-10" and "10".

Loudness Level

Choose between "0" and "20".

Loudness

Switch the Loudness "On" or "Off".

Output Mode

Select Stereo, Mono or Bridge. If Mono is selected the audio output is always mono. On Bridge mode the right channel is inverted and audio output is mono. The Bridge mode is used to allow a bigger output signal.

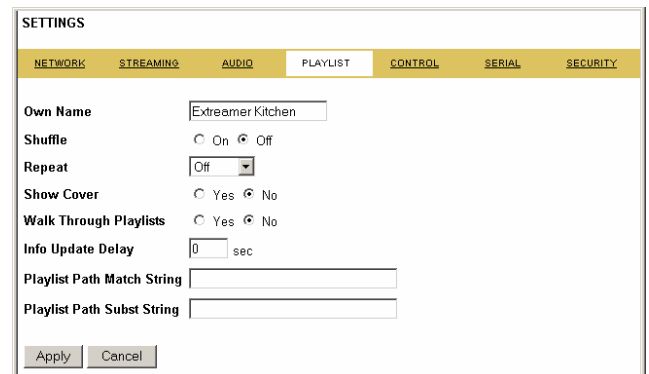
Configuration Auto Store

Stores the configuration automatically 30 sec after the last

change in the control interface. The stored parameters are volume, mute, volume lock, balance, bass, treble, loudness on/off, shuffle and repeat.

7.6 Playlist settings

This settings adjust the playlist properties.



Own Name

You can enter the name of the Exstreamer here. This name is displayed in the file info frame on the device status page. This name will be returned when using the DISCOVER command (see technical documentation) and will be used for the SYNC function by other Barix Exstreamers.

Shuffle

This action automatically shuffles the media files inside a playlist and plays them randomly non stop.

Repeat

If "Off" then nothing is repeated. If "Song" is selected the actual song is played non stop. If "Playlist" is selected the actual playlist is repeated non stop.

Show Cover

If set to yes, the on the right side of the songlist a cover image of the selected playlist is showed. The name of the cover file is the name of the playlist file with the extension .jpg. It has to be in the same playlist directory as the playlist itself.

Walk Through Playlists

If set to "Yes", then it will play the next playlist after the last one finishes. With "Yes" all playlists will play back to back automatically.

Info Update Delay

If set to zero, no cyclic update of the info frame. Else every n second the file info will be updated.

Playlist Path Match String / Subst String

If the path of a song in a playlist starts with the match string, it will be replaced with the subst string.

7.7 Control settings

This settings adjust the control ports, IR source and IR gateway properties.

UDP command port

Define the port on which the device will receive commands via UDP.

TCP command port

Define the port on which the device will receive commands via TCP.

Web server port

Defines the port where the webserver of the Barix Exstreamer can be reached. If set to "0" the default HTTP port (80) is used.

IR Source

Select "IR IN" when attaching a IR Receiver on the IR IN jack or "IR Serial Dongle" when using the supplied Serial Receiver.

IR Gateway

When activated all received IR remote control commands will be transmitted to other Barix devices IR OUT output. Leaving the IP address at 0.0.0.0 and setting a valid port (not 0) will broadcast the IR commands in the LAN. To direct to a specific device set the IP Address of the device and the port (*Example: 192.168.0.24:12301*). To disable the IR Gateway set the IP address to 0.0.0.0 and the port to 0.

7.8 Serial settings

This settings adjust the serial port, serial gateway and IR Dongle LED properties.

Baud rate

Select the serial transmission speed (300 to 115200 Baud).

Data bits

Select 7 or 8 data bits.

Parity

Select no, even or odd parity.

Stop bits

Select 1 or 2 stop bits.

Flow control

Select the type of flow control: none, software (XON/XOFF) or hardware (RTS/CTS).

Local port

Defines the port on which the serial port can be accessed for serial gateway application. Only when "Local port" is set to "0" the serial port can be used as a command interface. If the active serial gateway is enabled and the "Local port" is set to a value then this will be the source port of the TCP connection. On "0" a random source port is used.

Destination IP

To have this Barix Exstreamer actively establish a serial gateway select the destination IP address to the device where the serial data will be transmitted to (and received from).

Select "0.0.0.0" when the serial port is only used local.

Destination port

Defines the port for the active serial gateway function (see destination IP).

Notes

Both settings, "Destination IP" and "Destination port" have to be set to enable the gateway function.

RTS function

Select the function of the RTS output pin.

On "IR Status" the LED on the connected IR Dongle will flash upon reception of an IR Remote Control (default setting). On "activate AVR" RTS is on during streaming and 60 sec after the last streaming. It can be used to activate an Audio Video Receiver or Amplifier. On "RTS" it can be used for flow control as usual or as an additional output.

7.9 Security settings

This settings can be used to secure the access to the Barix Exstreamer on several levels. The status is shown next to each password (set or not set). Access is free for levels without a password (default setting).

Level	Password	Status
Telnet/Serial Configuration	<input type="text"/>	not set
Save Configuration	<input type="text"/>	not set
View Configuration	<input type="text"/>	not set
Control/Command	<input type="text"/>	not set
4 (User)	<input type="text"/>	not set
5 (User)	<input type="text"/>	not set
6 (User)	<input type="text"/>	not set
Licence	<input type="text"/>	Sync enabled

Telnet / Serial configuration

Enter up to 7 characters to secure the access to the Telnet and Serial configuration. Without a valid password the network configuration cannot be changed.
Enter 8 characters to erase the current key.

Save configuration

Enter up to 24 characters to secure the saving of the device configuration (Clicking on Apply). Without a valid password the device configuration cannot be saved!
Enter 25 characters to erase the current key.

Save configuration password usage

When the password is set the user has to type in the password in the "Save Config Password field" before hitting the "Apply" button.

Otherwise a warning will be displayed without saving the changes made.

View configuration

Enter up to 24 characters to secure the viewing of the device configuration (Clicking on Config link). Without a valid password the device configuration cannot be viewed!
Enter 25 characters to erase the current key.

View configuration password usage

When the password is set the user clicking on the "Config" link has to type in the password in the password field of the pop up window (the user name does not matter).

Only one user can log in at a time. Further connections will be refused while one user is logged in.

To log out click on the "Logout" link next to the "HOME" icon in the menu bar.



Please hit your browser's Reload button if the "Logout" link is not visible while logged in.

Control / Command

Enter up to 24 characters to secure the access to all control and command interfaces (WEB/CGI, Serial, TCP and UDP). Without a valid password the device cannot be controlled. Enter 25 characters to erase the current key.

Note

This security option should be used very carefully and is intended for advanced users only. Since the CGI commands used in the web interface do not make use of passwords, setting this password would disable any control of the Barix Exstreamer using a browser.

Level 4 to 6 (User)

Enter up to 24 characters to secure the access to customized web pages in 3 levels. Intended for advanced users only, for details see the Barix Exstreamer Digital Technical Documentation. Without a valid password these user web pages can not be viewed.
Enter 25 characters to erase the current key.

License

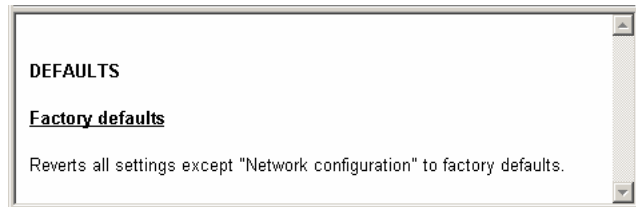
Type here the license you've received to enable the related functionality.

7.10 Reverting to factory defaults

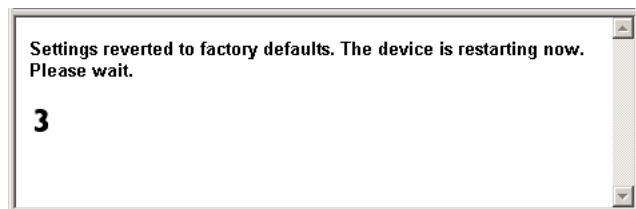
Click on the DEFAULTS button to enter the defaults page.



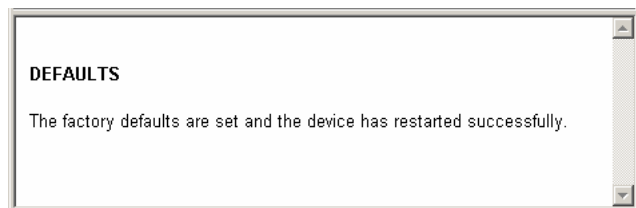
You will see the following screen:



Click on "Factory defaults" to revert all settings except "Network configuration" to factory defaults. While restarting the device the following screen appears showing a number counting down:



Upon start up the following screen appears stating the successful reverting to factory defaults:



Hard default settings

To revert all settings (including the network settings) to factory defaults the Reset button has to be pressed for about 5 seconds while the Barix Exstreamer is powered.

Important note

Use this method if connection to the Barix Exstreamer cannot be established.

This can happen if you have set a Static IP address once, switched off SonicIP and then forgotten the IP address. The Hard default settings sets the IP Address to automatic discovery (0.0.0.0) and enables SonicIP.

If this fails we recommend to download the Barix Exstreamer Digital Rescue Kit from www.barix.com. This Rescue Kit reloads the entire firmware using the supplied serial cable.

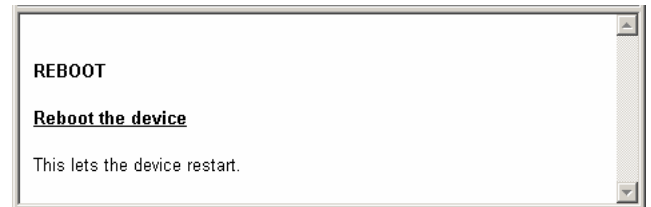
Unzip the Kit and read "readme1st.txt" for instructions.

7.11 Rebooting the device

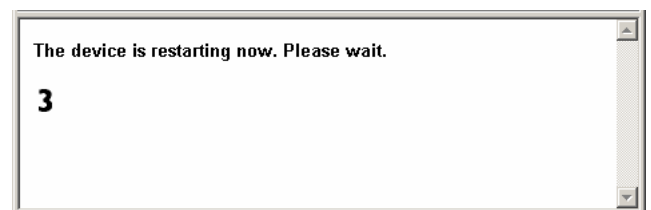
Click on the REBOOT button to enter the reboot page.



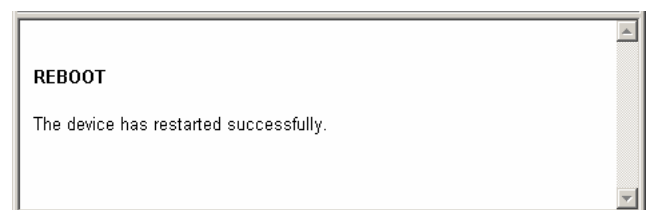
You will see the following screen:



Click "Reboot the device" to restart the Barix Exstreamer. While restarting the device the following screen appears showing a number counting down:



Upon start up the following screen appears stating the successful restart:



7.12 Updating the device

Barix constantly enhances the capabilities of their products. Therefore we recommend to keep the software on the Barix Exstreamer up-to-date.

To download the latest firmware version please visit www.barix.com.

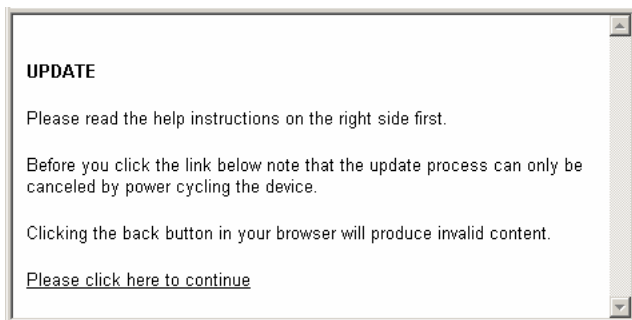
Click on **Support**, click on **DOWNLOAD SECTION** and scroll down to the Barix Exstreamer Digital. Download the firmware update package and unpack to a local drive. If no update package is available then the Rescue Kit must be used. Read "readme1st.txt" for instructions. This Rescue Kit reloads the entire firmware, resets the device to factory default settings using the supplied serial cross cable and a PC running W2K or XP.

STEP 1

Click on the UPDATE button to enter the update page.

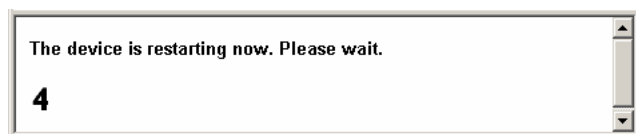


You will see the following screen:

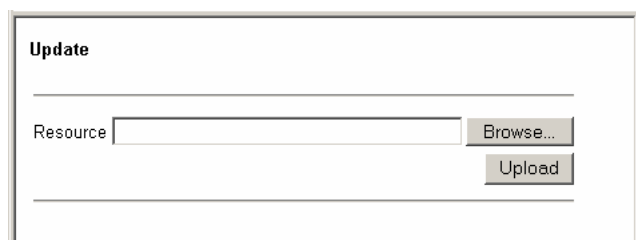


STEP 2

Click on "Please click here to continue" to launch the update process. The device will restart in a special mode called Bootloader and the following screen appears showing a number counting down:



Upon start up the following screen appears ready for the update process.



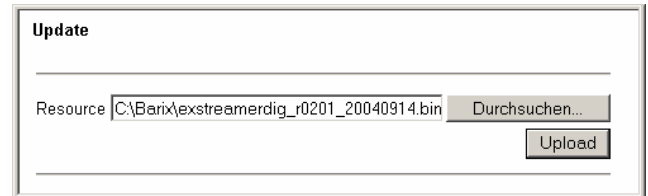
STEP 3

To upload an update click on "Browse..." to locate the file you want to update.

The file is named **exstreamerdig_version_date.bin**

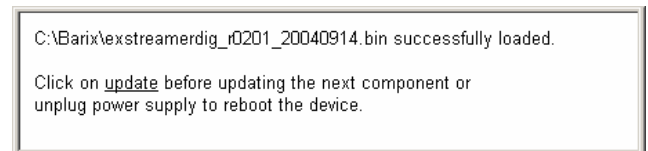
Example: exstreamerdig_v201_20040914.bin

If you load the wrong file the device will not work and then the Rescue Kit must be used.

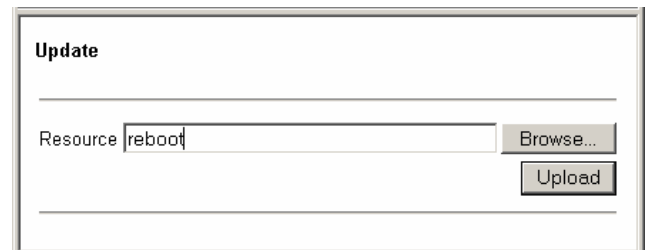


Once selected, click on "Upload". This process can take a few minutes.

After a successful upload the following window appears:



Click on the update link before updating the next component. Unplug power supply to reboot the device or type "reboot" in the resource field (without the ")



and click on "Upload".

The following screen appears:



STEP 4

Close the browser window. After the device has rebooted open a new browser window to continue.

8 The step by step “How To”

8.1 How to set a static IP address

STEP 1

Open your Web Browser.

STEP 2

Enter the Barix Exstreamer’s IP address and press Enter.

Example: 192.168.0.12

STEP 3

Click on the Configuration button.



STEP 4

Enter an IP address into the 4 IP address fields. At default it is 0.0.0.0 for automatic. You can use the address that was announced by the Barix Exstreamer.

STEP 5

In normal operating conditions leave the Netmask as is.

STEP 6

The Gateway can be left at default in normal operating conditions. The Gateway enables the Barix Exstreamer to connect to the internet (For advanced users).

STEP 7

Hit the Apply button to save all changes. The Barix Exstreamer will reboot and has now a Static IP address.

8.2 How to set the Barix Exstreamer to stream music from your PC

The Barix Exstreamer is in this operating mode by default. Follow this steps to ensure correct settings.

STEP 1

You must have the zServer running on a computer (see section 5.1)

STEP 2

Open your Web Browser

STEP 3

Enter the Barix Exstreamer’s IP address and press Enter.

Example: 192.168.0.12

STEP 4

Click on the Config link.

STEP 5

Click on the SERVER tab in the SETTINGS menu

STEP 6

Choose "0 zServer (auto detect) " in the Mode field.

STEP 7

Make sure that Server Port says: **8888**

STEP 8

Make sure that Server Path says: /

STEP 9

Make sure that Playlist List Path says: **/playlist.html**

STEP 10

Hit the Apply button to save the changes. The Barix Exstreamer will reboot.

STEP 11

After the reboot wait until the green LED stays steady (zServer was found), click on the HOME icon to get to the main page. You should see now your playlists served by the zServer. Clicking on a playlist will start the music.

8.3 How to set the Barix Exstreamer to stream music from a specific PC

For use with multiple zServer in the network.

STEP 1

You must have the zServer running on the computer you want to stream from.

STEP 2

Open your Web Browser

STEP 3

Enter the Barix Exstreamer’s IP address and press Enter.

Example: 192.168.0.12

STEP 4

Click on the Config link.

STEP 5

Click on the SERVER tab in the SETTINGS menu

STEP 6

Choose "1 zServer (fix) " in the Mode field.

STEP 7

Enter the IP address of the computer you want to stream from in the Server IP Address field.

Example: 192.168.0.99

STEP 8

Make sure that Server Port says: **8888**

STEP 9

Make sure that Server Path says: /

STEP 10

Make sure that Playlist List Path says: **/playlist.html**

STEP 11

Hit the Apply button to save the changes. The Barix Exstreamer will reboot.

STEP 12

After the reboot click on the HOME icon to get to the main page. You should see now your playlists served by the zServer. Clicking on a playlist will start the music.

8.4 How to set the Barix Exstreamer to stream music from a web server

For use with standard web servers

STEP 1

Open your Web Browser

STEP 2

Enter the Barix Exstreamer's IP address and press Enter.
Example: 192.168.0.12

STEP 3

Click on the Config link.

STEP 4

Click on the SERVER tab in the SETTINGS menu

STEP 5

Choose "2 Web server" in the Mode field.

STEP 6

In the Server IP Address field enter in the IP address of the target web server the Barix Exstreamer should stream from.

STEP 7

In the Server Port field you have to enter the port number of which your web server is communicating (standard web servers work on port 80). *Example: 80*

STEP 8

In the Server Path field you have to enter the path where your playlists are stored on the web server. Please note that you have to put a "/" in front and at the end of the path. A single "/" in the field indicates the root directory of the Web server. *Example: /Music/*

STEP 9

In the Playlist List Path field you have to enter the path where your list of playlists is stored on the web server.
Example: /Music/playlist.txt

STEP 10

Hit the Apply button to save the changes. The Barix Exstreamer will reboot.

STEP 11

After the reboot click on the HOME icon to get to the main page. You should see now your playlists served by the web server. Clicking on a playlist will start the music.

8.5 How to set the Barix Exstreamer to be a streaming puller

For use with standard MP3 jukeboxes or many Web radio stations.

STEP 1

Open your Web Browser

STEP 2

Enter the Barix Exstreamer's IP address and press Enter.
Example: 192.168.0.12

STEP 3

Click on the Config link.

STEP 4

Click on the SERVER tab in the SETTINGS menu

STEP 5

Choose "3 Streaming Puller" in the Mode field.

STEP 6

In the Server IP Address field enter in the IP address of the target jukebox or radio station the Barix Exstreamer should stream from.

STEP 7

In the Server Port field enter in the port number required by the jukebox (check the jukebox documentation) or radio station.

STEP 8

In the Server Path field you have to enter a "/". Some Jukeboxes allow you to distinguish between different server Paths: *Example: /music2*

STEP 9

Hit the Apply button to save the changes. The Barix Exstreamer will reboot.

STEP 10

After the reboot the Barix Exstreamer will start pulling music from your Jukebox or Web radio station.

8.6 How to set the Barix Exstreamer to be a streaming receiver

For use with applications sending a stream.

STEP 1

Open your Web Browser

STEP 2

Enter the Barix Exstreamer's IP address and press Enter.
Example: 192.168.0.12

STEP 3

Click on the Config link.

STEP 4

Click on the SERVER tab in the SETTINGS menu

STEP 5

Choose "4 Streaming receiver" in the Mode field.

STEP 6

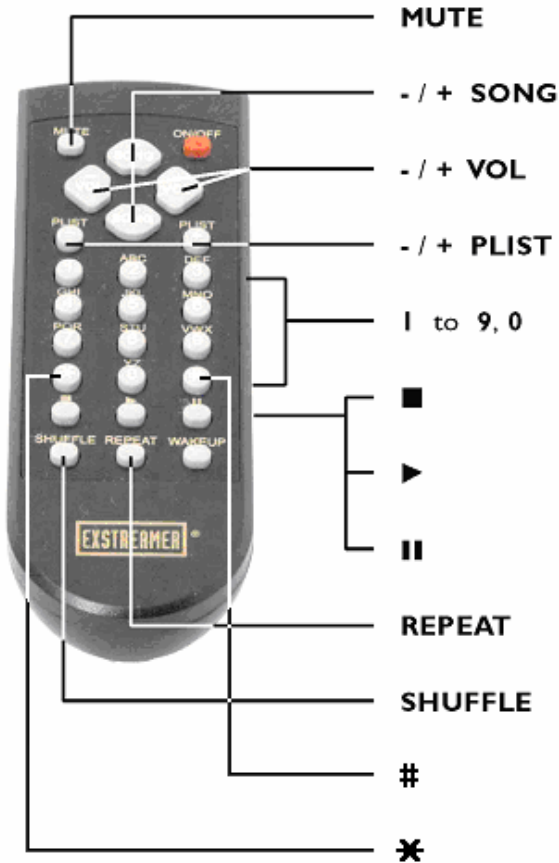
Hit the Apply button to save the changes. The Barix Exstreamer will reboot.

STEP 7

After reboot the Barix Exstreamer will wait for a stream on the selected TCP and/or UDP Streaming Listen Port.

9 IR Remote control

Follow this instructions if you have purchased the optional IR Remote control kit.



To prepare the IR Remote Control for usage open the battery compartment and check the signs of polarity. Insert the two batteries accordingly into the IR remote control. The IR Remote Control is now ready to operate.



Connect the serial cable of the IR Serial receiver to the serial port of the Barix Exstreamer. Make sure you have line of sight with the IR Serial receiver from where you want to use the IR remote control.

On power up the blue LED will be on until the Barix Exstreamer has set the network and announced the IP Address. The function of this LED can be changed in the configuration Serial settings by the field "RTS function" (see

section 7.9 Serial settings). The Installation is completed. The Barix Exstreamer can now be controlled through your IR remote control. Enjoy the comfort and ease of use!

Mute / Unmute the Barix Exstreamer's Output.

Switch to previous / next song in the current playlist.

Decrease / Increase volume of Barix Exstreamer Output.

Switch to first song of previous / next playlist.

Play playlist one to ten.

Stop the current song.

Play the current song.

Pause the current song.

REPEAT Toggle repeat mode for song / playlist / off.

SHUFFLE Toggle shuffle mode on / off.

Refreshes the list of playlists entries on the control page

SYNC with first discovered Barix SYNC master device

The following keys are currently not being used (ready for future use): ON/OFF | WAKEUP

10 Advanced user section

10.1 Network configuration using supplied serial cable

STEP 1

Open a Terminal program.

STEP 2

Go to the settings menu and adjust the following settings: Baud rate 9600 bit/sec, 8 Data Bits, no Parity and 1 Stop Bit.

STEP 3

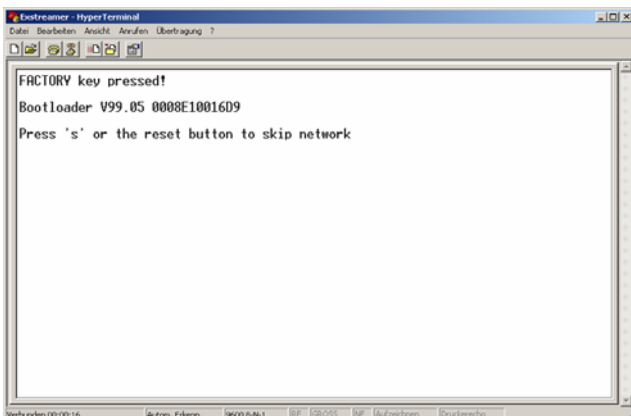
Unplug the power supply of the Barix Exstreamer.

STEP 4

Connect the supplied serial cable to your PC's COM port and to the serial port of the Barix Exstreamer.

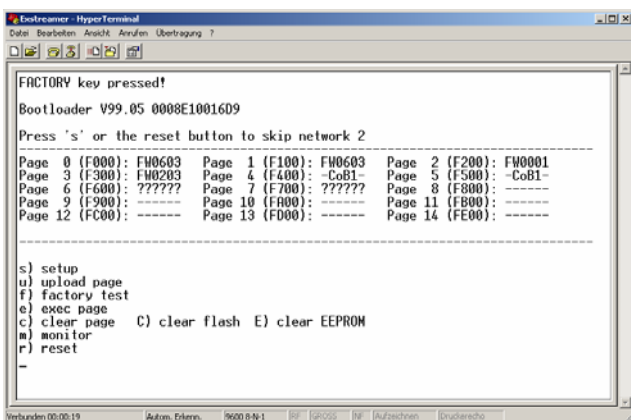
STEP 5

Keep the Reset button pushed and plug in the power supply. Release the Reset button as soon as you see following screen:



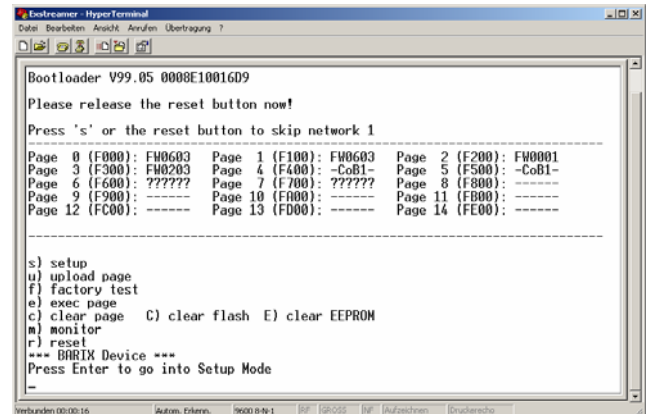
STEP 6

Hit <s> to skip network discovery if not connected to a network and the following screen appears:



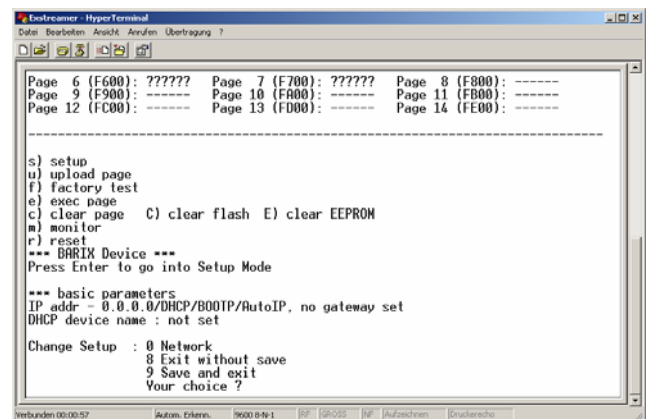
STEP 7

Hit <s> to get to the Barix Exstreamer's setup.



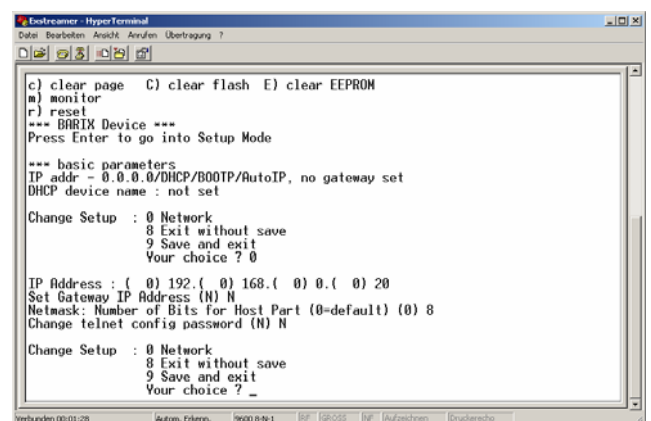
STEP 8

Hit <enter> to enter the Barix Exstreamer setup mode.



STEP 9

Type in <0> and hit <enter> to enter the Network configuration. Enter all requested values:



STEP 10

Type in <9> and hit <enter> to save the Network configuration.

10.2 Network configuration using telnet

STEP 1

Unplug the power supply of the Barix Exstreamer.

STEP 2

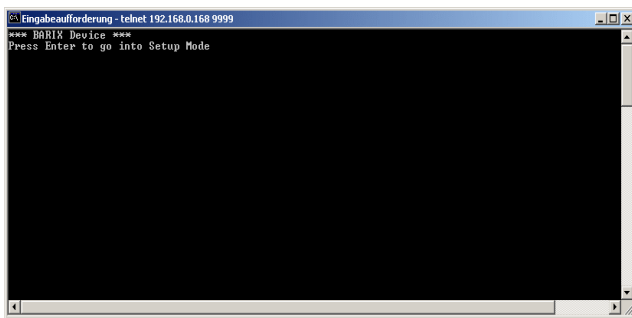
Keep the Reset button pushed and plug in the power supply. Release the Reset button after 5 seconds.

STEP 3

Run a command session. Type telnet in the run window with the IP address announced by SonicIP on port 9999.

Example: `telnet 192.168.0.168 9999`

You will see the following screen:

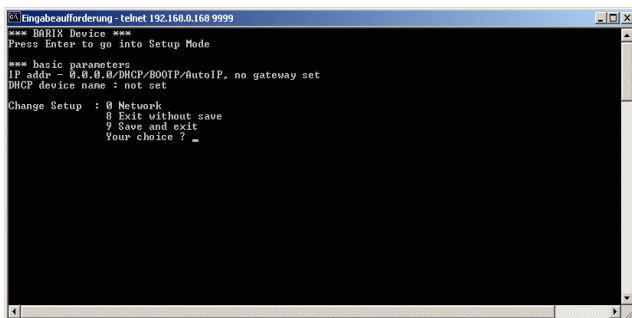


```

Eingabeaufforderung - telnet 192.168.0.168 9999
*** BARIX Device ***
Press Enter to go into Setup Mode

```

Hit <enter> to access the setup mode.



```

Eingabeaufforderung - telnet 192.168.0.168 9999
*** BARIX Device ***
Press Enter to go into Setup Mode

*** basic parameters ***
IP addr - 0.0.0.0/DHCP/BOOTP/AutoIP, no gateway set
DHCP device name : not set

Change Setup : 0 Network
               8 Exit without save
               9 Save and exit
Your choice ? _

```

STEP 4

Type in <0> and hit <enter> to enter the Network configuration. Enter all requested values.

STEP 5

Type in <9> and hit <enter> to save the Network configuration.

10.3 Control APIs for serial and Ethernet

For integration of the Barix Exstreamer into various control applications and home automation systems, Barix has developed a control API (Application Protocol Interface) for the serial port and Ethernet UDP and TCP control.

Serial Port control API

The serial port on the Barix Exstreamer can be used to send control commands from a home automation system and other PC or embedded applications. In the device configuration the serial port can be adjusted to suit your application.

For a detailed list of serial commands refer to the Exstreamer Digital Technical Documentation available on the Barix website www.barix.com

Ethernet UDP or TCP control commands

The same control commands used on the serial port can be used as UDP or TCP commands over Ethernet.

For more information and a detailed list of UDP and TCP control commands refer to the Barix Exstreamer Digital Technical Documentation available on the Barix website www.barix.com.

10.4 Expert settings

There is also the possibility to disable some IP protocols. Change the IP address in the serial-, Telnet- or Web configuration to:

0.0.1.0 to disable AutoIP

0.0.2.0 to disable BOOTP

0.0.4.0 to disable DHCP

11 FAQ and Troubleshooting

Q: I don't see any status lights on at all.

A: Make sure the power cable is correctly plugged into the unit and make sure the power supply is plugged into the wall.

Q: Red status light is flashing red.

A: Make sure the network cable is plugged into the unit. The status light on the jack indicates if you are connected to the network or not. Make sure the Music Server program is running on the network. You can also ping the device to see if it's on your network.

Q: How do I ping the Barix Exstreamer to see if it's on my network?

A: You can ping any device on your network by opening a DOS command box.

Type ping and the IP address of the unit to see if you can get a response.

Example: ping 192.168.2.10

The proper response would be to see the message "reply from 192.168.2.10".

If you see the message "request timed out", it means that the Exstreamer is not on your network or that you have entered the wrong numbers for the IP address.

Q: When I type in the IP address in the browser I get a "This Page Cannot Be Displayed" Message

A: This means that you can not connect to the Barix Exstreamer. There could be a couple of different reasons. Make sure you are typing in the IP address correctly. Check the cables to make sure the Barix Exstreamer is properly connected to the network.

Q: Will the Barix Exstreamer work on my operating system?

A: The Barix Exstreamer works on virtually any operating system because the zServer software is a portable java application that was designed to run regardless of which operating system it is on. To control the Barix Exstreamer a standard web browser is all you need.

12 Technical specifications

Audio Format:

MP3 (up to 320 kBit), uncompressed formats (WAV) in future versions

Audio Interfaces:

Stereo RCA, 4.2Vpp max (0dbFs) SNR>90dB,
Frequency Response: -0.05dB (20Hz), 1.45dB (20kHz)
THDN + N: 0.015% (0dbFs)
S/PDIF out (optical, RCA)
volume, bass and treble adjustable by browser

Network Interface:

RJ45 10/100 Mbit Ethernet (Auto),TCP/IP,
UDP, ICMP, DHCP, BOOTP, AutoIP, SonicIP®,
IPzator™, SMB/CIFS, integrated web server for
control and configuration

Control Interfaces:

DSub 9pin male, 9600 Baud 8, N,1
3.5 mm Jack Infrared input for IR receiver
3.5 mm Jack Infrared output for IR transmitter

Misc:

Two LED (red and green) status indicators
Reset/Factory default button

Power requirements:

12 VDC 0.5 A, 230 VAC (EC) or
110 VAC (US) power supply included
Consumption: max. 4W

Case:

aluminium elox,
6.5" x 1.5" x 5"
165 mm x 38 mm x 127 mm
Weight: 480 grams

Certifications:

FCC, CE

User Interface:

browser based (integrated webserver),
serial port or ethernet control API for home
automation systems

13 Dictionary

DHCP

Short for Dynamic Host Configuration Protocol, DHCP is a protocol used to assign an IP address to a device connected to a Network.

DOS

Microsoft DOS (Disk Operating System) is a command line user interface. MS-DOS 1.0 was released in 1981 for IBM computers. While MS-DOS is not used commonly today, it still can be accessed from Windows 95, XP, Windows 98 or Windows NT by clicking Start / Run and typing command or CMD in Windows 2000.

IP

Short for Internet Protocol, the IP is an address of a computer or other network device on a network using IP or TCP/IP. Every device on an IP-based network requires an IP address to identify its location or address on the network.

Example: 192.168.2.10

IPzator

Barix IPzator™ technology is designed for the purpose that the Barix Exstreamer can create its own IP address according to the network structure in case it can't receive one from your network. If DHCP, AUTOIP or BOOTP fail, IPzator will create an IP address within the subnet and test it. If the address works and is not being used by another device on the network, it will give the address to the Barix Exstreamer.

MAC address

Abbreviation for Medium Access Control, a MAC is a unique address number formatted in hexadecimal format and given to each computer and/or network device on a computer network. Because a MAC address is a unique address a computer network will not have the same MAC address assigned to more than one computer or network device.

Example: A1:B2:C3:D4:E5:F6

Netmask

A number used to identify a sub network so that an IP address can be shared on a LAN (Local Area Network). A mask is used to determine what subnet an IP address belongs to. An IP address has two components, the network address and the host address. For example, consider the IP address 150.215.17.009. Assuming this is part of a Class B network, the first two numbers (150.2) represent the Class B network address, and the second two numbers (.017.009) identify a particular host on this network. The Netmask would then be 255.255.0.0

Ping

Ping is a basic Internet program that lets you verify that a particular IP address exists and can accept requests.

Example: ping 192.168.2.10

SonicIP

Barix SonicIP® technology is designed to vocally announce the Barix Exstreamer's current IP address. This makes it easier and faster to obtain the necessary network information. To make use of SonicIP plug in the included earphone into RCA audio out, connect the network and plug in the power supply. It will announce the address over the earphones right after power up.

Static IP

A Static IP is a fixed IP address that you assign manually to a device on the network. It remains valid until you disable it.

Telnet

Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer. With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

Example: telnet 192.168.2.10

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