BARIX

THE VOICE OF SIMPLICITY

EXSTREAMER P5

PRODUCT MANUAL

Universal, Multiformat IP Audio Decoder with Amplifier, PoE powered

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Hardware Rev.   HW 1.0

Table of Contents

1   Introduction

1.1 About this document

This PRODUCT MANUAL aims at giving insight to detailed technical aspects of the device and complements the information given in the product sheet.

The „Quick Install Guide" (a printed version is included in the devices package) is contained in this document and followed by chapters to complete the installation.

1.2 Additional documents

As several different applications and different standard firmware packages can be used with the Barix Exstreamer P5, the process of loading or updating a software is also covered in this document.
For information about the configuration of the loaded application or firmware please refer to the corresponding software user manual.

1.3 About the Exstreamer P5

The Exstreamer P5 is a member of the Barix Exstreamer product family, versatile Audio over IP codecs (encoder/decoder) for use in a wide field of applications, from broadcast to in-store, from distribution of music in hotelsto SIP telephone paging applications.

1.4 Applications

- Overhead Speaker Interface with Amplifier
- Commercial audio streaming applications
- Playback point in an IP PA system
- In-room IP Device for Hotels, Venues
- In-store audio distribution
- SIP based paging interface
- Zone output device for IP distributed audio
- Ethersound (ES-100/Spkr) channel receiver

1.5 Hardware features

The Barix Exstreamer P5 features:

- High quality, multi standard audio decoding in formats:
  PCM 16bit linear, PCM 8bit logarithmic (µLaw / aLaw) ,
  MP3, AAC+, Ogg Vorbis
- 2 KB EEprom for configuration storage
- 2 MB Flash memory for application and web server content
- Speaker out (5W @ 8Ohm)
- 10/100Mbit Ethernet port supporting PoE (802.3af)
- RS-485 interface, 300..230'400 Baud, IR interface, 10VDC output (100mA self-resetting fuse) supporting Barix Volume Source Controller VSC
- 2 LED device status indicators
- 2 LED network status indicators
- Width 108 mm / 4.25", Height 38 mm / 1.5", Depth 78.7 mm / 3.1"
- Low weight: 300 g / 10.58 oz.
- Low Power consumption: 15 Watt max.
- Power supply via 802.3af (PoE) Ethernet (48 VDC)

1.6 Integrated Barix IP Audio Module

The Barix Exstreamer P5 houses the Barix IP audio module "IPAM 300". For technical details on the audio module please refer to the corresponding product sheet and the development specification.

1.7 Available Applications and Firmware packages

The Barix Exstreamer P5 comes preloaded with the Firmware "Streaming Client" but can also be loaded with different firmware packages featuring:

- Embedded and robust operating system with fully routable IP stack
- IP standard based protocols (TCP/IP, UDP, HTTP, ICMP, SNMP)
- Supports BootP, DHCP, Auto IP and IPzator
- Integrated web server for configuration, control, update and streaming functions
- Fully documented Application Programming Interface (API)
- Highly customizable User Interface (HTML) with development kit
- Special software features in OEM versions on request

Other standard firmware packages as well as ABCL applications can be downloaded from the Barix website.

2 Quick Installation Guide

2.1 Introduction

This chapter is a copy of the printed „Quick Install Guide" which is included in the devices package. It explains the initial installation steps assuming the presence of the Exstreamer P5 Accessory Kit.

To complete the installation please read also the following chapters.

2.2 Package contents

a   Exstreamer P5

b   Screw block terminal connector (2 pin) for speaker

c   Quick install guide

2.3 Firmware

This device comes preloaded with the Streaming Client firmware. Alternative firmware, such as the iClient ABCL application, can be downloaded from www.barix.com.

2.4 Support

For support please contact your local dealer or visit www.barix.com.

2.5 Front view

2.6 Rear view

A Reset button

A brief press of the button will reset the device. Holding the reset button pressed in for approximately 10 seconds will reset the device and restore the factory default settings when the button is released.

B Status LEDs

Green and red LEDs for status display

C Control interface (RJ45)

Compatible with VSC Volume Source Control unit.

Pin	Description
1	Not connected
2	Not connected
3	Ground [GND]
4	RS-485 B
5	RS-485 A
6	IR signal input
7	Ground [GND]
8	V+ 10V, 100mA max

D Speaker output (Plug b)

Pin	Description
1	Speaker -
2	Speaker +

E Ethernet port 10/100 PoE (RJ-45)

Standard RJ45 Ethernet socket with PoE power (802.3af) input

Pin	Description
1	Tx + / PoE a+
2	Tx + / PoE a+
3	Rx + / PoE a-
4	PoE b+
5	PoE b+
6	Rx - / PoE a-
7	PoE b-
8	PoE b-

F Ethernet Status LEDs

Green LED for Link status.
Yellow LED for Activity status.

2.7 Installation

STEP 1

Plug a standard (straight) network cable (not included) into the network port (E) of the Exstreamer and the other end into your PoE switch. You can also use a crossover network cable (not included) and a PoE injector for a direct connection to your PC.

STEP 2

i) Wire your speaker to the speaker plug (b), plug it into the speaker output (D) and listen.

ii) If you are not yet ready to connect the speaker, you can still configure the Exstreamer. Either download the "Barix DiscoveryTool" from www.barix.com for use in Step 4ii) or continue from section 2.9 on the next page.

STEP 3

Connect the Power supply (b) to the device (socket D) and then to an appropriate electrical outlet.

STEP 4

i) The Exstreamer will now acquire an IP address and announce it over the audio outputs (if no DHCP server is available this can take up to 5 minutes).

ii) If you did not connect a speaker, launch the "Barix Discovery Tool" and click the "Get" button to find out which IP address the device has obtained (see picture at the bottom of the page). Make sure that the Ethernet/MAC address matches your device (see label on the bottom of the device).

STEP 5

If you intend to use a VSC Volume Source Control unit plug a standard (straight) network cable (not included) into the control port (C) of the Exstreamer and the other end into your VSC unit.

Now that you know the IP address proceed to section 2.8 Network configuration by web browser.

If you were not able to obtain the device's current IP address with the previous steps see section 2.10 Troubleshooting.

2.8 Network configuration by web browser

If you need to use static (fixed) network settings follow the steps 1 to 3 otherwise continue at step 4.

STEP 1

Open your web browser.

STEP 2

Enter the IP address that was announced by the Exstreamer and press Enter. Example: 192.168.0.12 In the top menu click on the "Configuration" button. In the left menu click on "Advanced Settings" to see the following page:
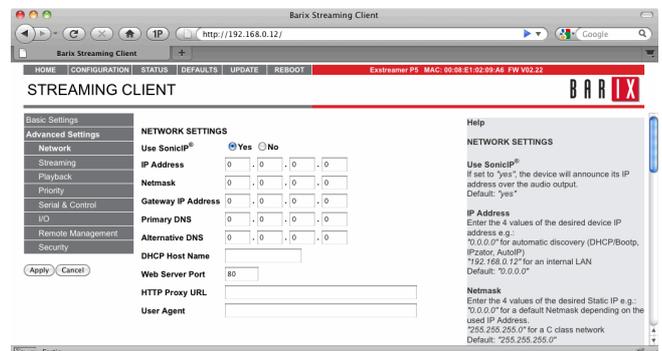
STEP 3

Enter the static IP address into the IP address field. The default is "0.0.0.0" for automatic discovery (DHCP).

If you know the values for the other fields enter them, otherwise leave them at default ("0.0.0.0").

Hit the "Apply" button to save all changes. The device will reboot with the configured IP address.

STEP 4

Skip the next page and read the following chapters to complete the installation.

2.9 Setting temporary IP address using the MAC address

This procedure will work only in a local network. After this procedure the temporary IP will be active only until restart/reboot. After a restart the procedure has to be repeated.

STEP 1

Either use a network cable to link the Exstreamer and the PC directly, or connect the Exstreamer to the PC via your network switch and power the device. Make sure that you have a valid static IP address configured on your PC (e.g. 192.168.0.2)

STEP 2

Windows : For a command window. click on "Start", click on "Run..", in the "Open" field type cmd , click on "OK". OSX / Linux : Open a terminal window.

STEP 3

Please proceed to step 4 if you linked the PC directly to the device in step 1. To ensure that you use a free IP address (not already used by another device in the network) please use the Ping command. To verify availability in this example we assume the PC to have the IP address "192.168.0.2" and want to check if "192.168.0.6" is free.

Type **ping 192.168.0.6** and hit the "Enter" key. You should get no reply which gives you reasonable assertion that the "pinged" IP is available.

STEP 4

Look for the Exstreamer's MAC address printed on a label on the bottom of the device (12 hex digits, separated by a hyphen every 2 digits). Type into the windows command window

arp -s 192.168.0.6 00-08-E1-00-B1-77

or on a OSX or Linux system type into the terminal

arp -s 192.168.0.6 00:08:E1:00:B1:77

and hit the "Enter" key (replace the digits according to your devices MAC address). You must have administrative rights to be able to do so (sudo on OSX / Linux).

STEP 5

Now we have to make the Exstreamer listen to the IP address "192.168.0.6" using the Telnet command. To do so type into the command window

telnet 192.168.0.6 1 and hit the "Enter" key (the number "one" must be there for this command to work correctly !!!). The Exstreamer will immediately refuse the connection on port 1, but will be available for browser access as long as the device stays powered.

STEP 6

To check if the Exstreamer is responding you can use the ping command again. To do so type ping 192.168.0.6 and hit the "Enter" key. If you do get a reply the IP address 192.168.0.6 can be used to access the Exstreamer using a web browser. Please go back to section 2.8 Network configuration by web browser to configure a static IP address.

If you do get "request timed out" then please repeat step 5 carefully (you most likely mistyped the telnet command) or repeat the entire procedure.

If the ARP method does not work for you, refer to the user manual for further methods.

2.10 Troubleshooting

If the status LEDs (B) stay dark check the PoE power cabling (installation step 1).

Check if the green LINK LED (F) is lit, if it is not then check your network cabling (network port E).

Note: Acquiring an IP address can take up to 5 minutes.

3 Hardware

3.1 Introduction

The Barix Exstreamer P5 consists of a motherboard with connectors and peripheral circuits supporting the embedded IP audio module "IPAM 300" which is used for decoding audio. Besides the audio processor the IPAM 300 contains the CPU, RAM, Flash, EEProm, network, serial and discrete I/O circuits. For further details please refer to the IPAM 300's product sheet and development specification.

In this chapter we will explain the functional blocks using the below block diagram starting on the top left and working down each interface to the point where it is connected to the IP audio module. We then do the same from the top right corner.

At the same time you will find for each connector informations on how to wire the Barix Exstreamer P5 to external components. We will explain the wiring using the wiring diagram on the next page.

The labeling of connectors A to E refer to the previous chapter 2 Quick Installation Guide. Same goes for the parts included in the Exstreamer P5 package which are mentioned including indexing letters in parenthesis.

3.2 Functional block diagram
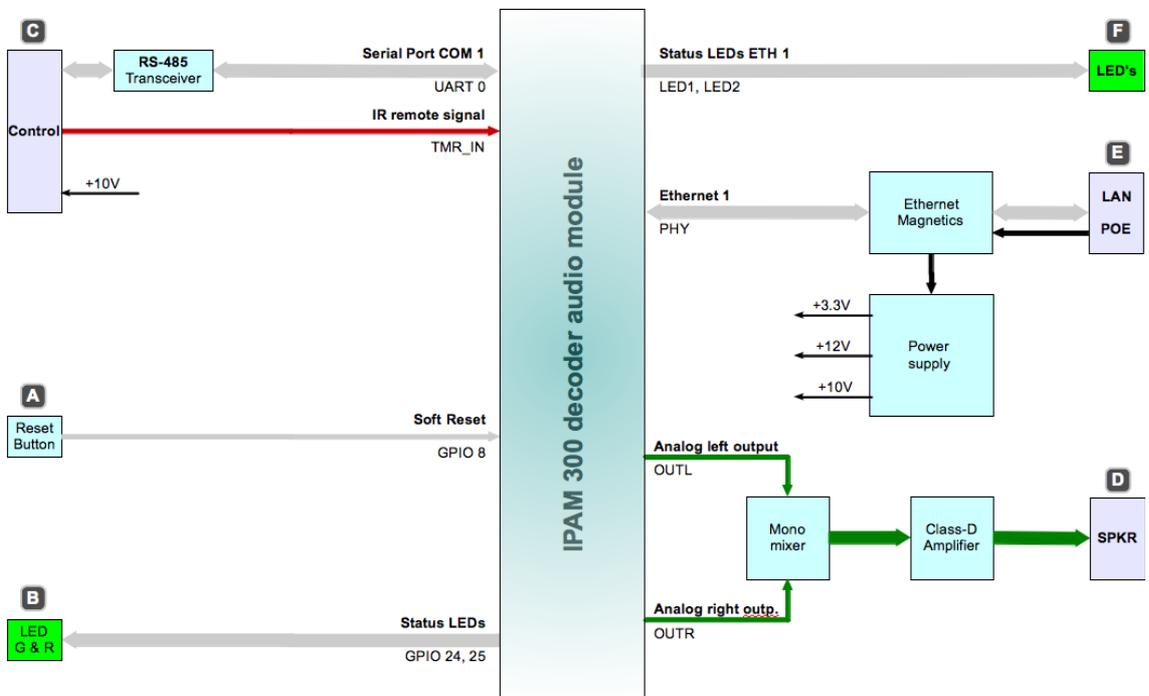
3.3 Wiring Diagram

Wiring diagram Barix Exstreamer P5   (Rev. 1.0)
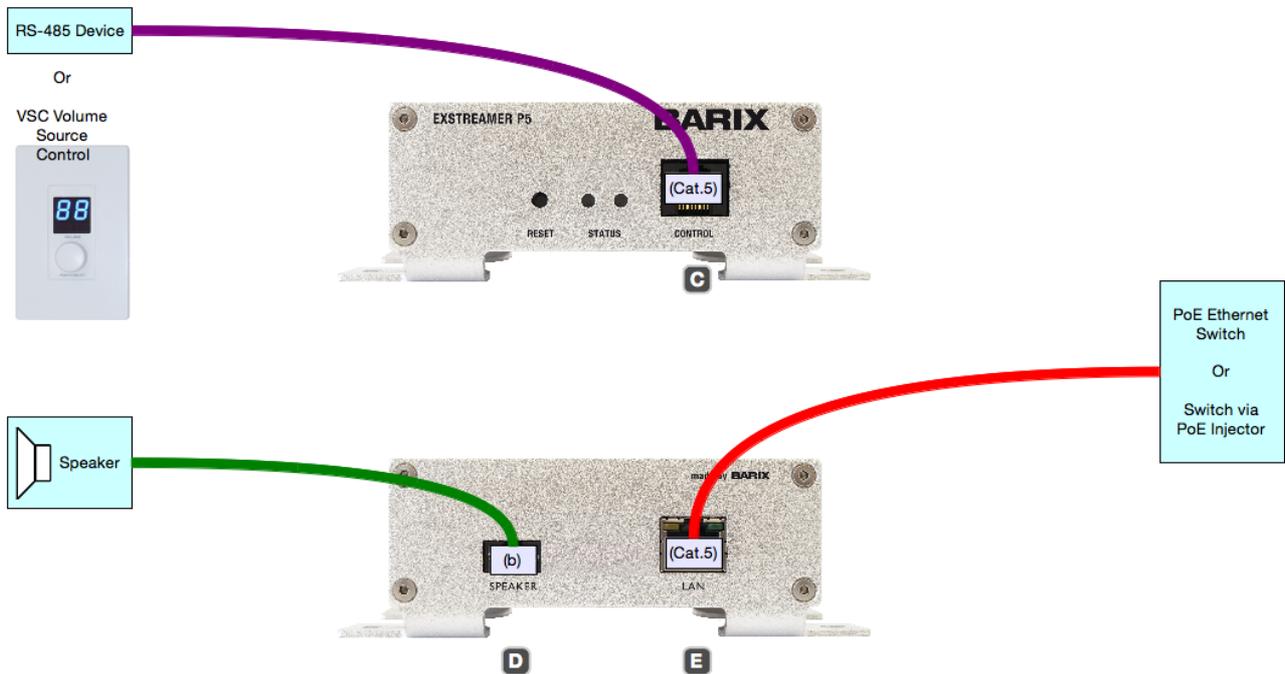
3.4 Control / RS-485 Serial Interface

The female RJ-45 socket **C** is connected trough a standard RS-485 serial interface transceiver with the IP Audio module carrying 10 VDC supply (self resetting fuse 100mA) and Ground intended for powering an external device consuming less than 1 Watt.

To connect to an external RS-485 device or bus a male RJ-45 connector is needed.
To connect a Barix VSC Volume Source Controller a standard Cat.5 cable can be used.
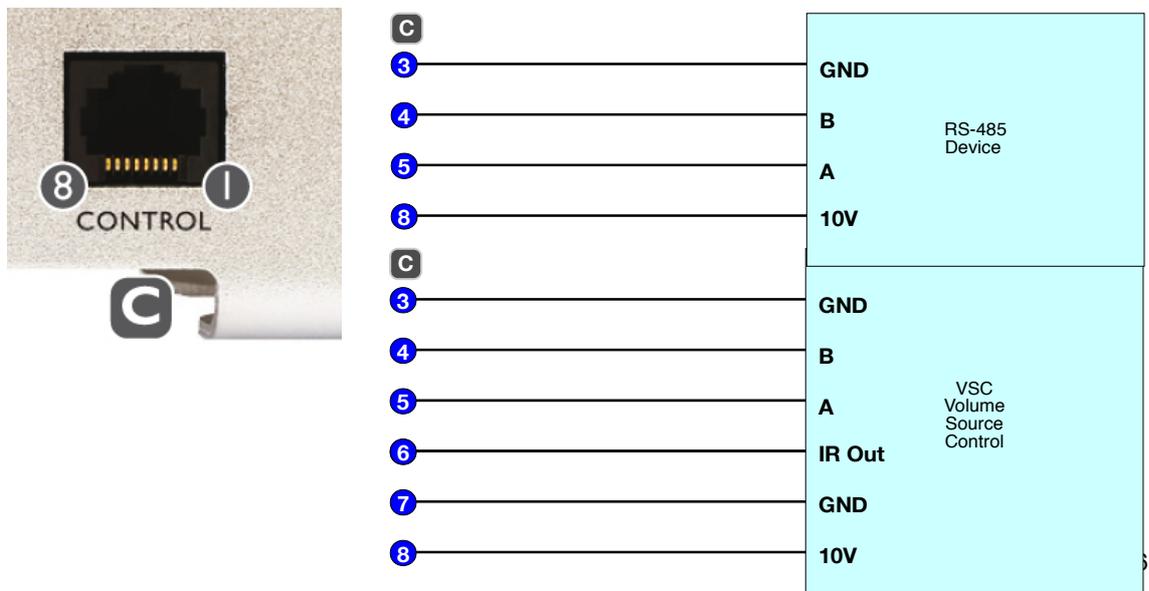
3.5 Speaker Interface

The male 2 pin connector **D** carries two pins, intended for a 8 Ohm speaker, are connected directly to the D-class amplifier which is fed by a mono mixer, summing up the left and right audio outputs of the IP Audio module. To achieve the highest sound power possible (5 Watt RMS) use an 8 Ohm speaker. A reasonable performance can be achieved with an impedance ranging from 4 to 32 Ohms.

To connect to a speaker use the supplied (b) orange, female 2 pin screw terminal block (Weidmuller P/N 1690880000) and fix it to the device using the two built-in locking screws.
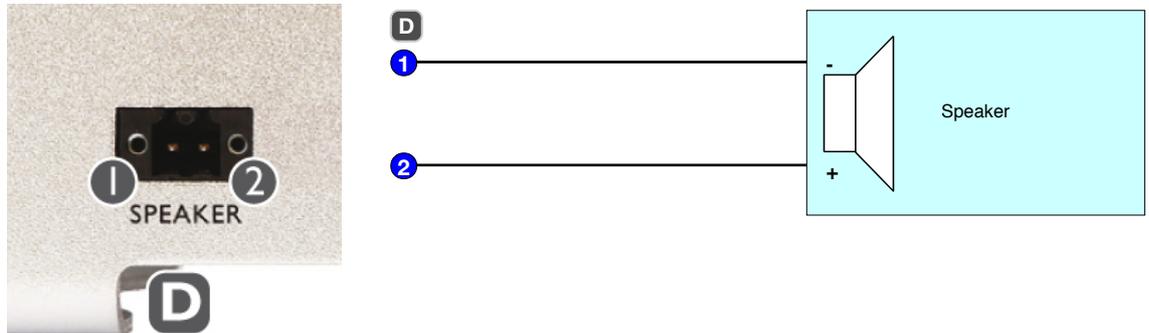
3.6 Network Interfaces

The female RJ-45 socket **E** is connected trough Ethernet magnetics circuits to the IP Audio module. The switch attached must supply 48VDC "Power over Ethernet" (802.3af) or a PoE injector must be used. The overall consumption is rated 15 Watts max. Power will be accepted on pins 1,2 (Pa+) against pins 3,6 (Pa-) or alternatively on pins 4,5 (Pb+) against pins 7,8 (Pb-).

A standard network cable (Cat.5 or higher, not included) must be used to ensure proper network and power functionality.
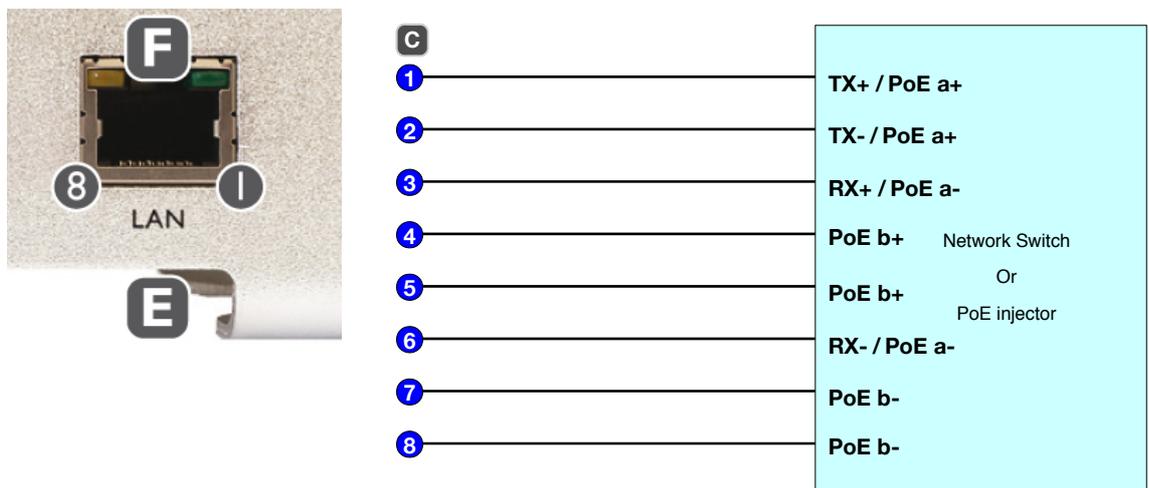
Status LEDs

The port features status LEDs (**F**).

The green LED shows the ports link status. On when the link is up, off when the link is down. The yellow LED shows the ports network activity. On when any traffic* is seen on that port, being it incoming or outgoing traffic. The yellow LED is off when there is no traffic on that port.

* Note: This traffic could be generated by this device (outgoing), traffic not addressed to this device but to any other device in the network (especially when daisy-chaining) or broadcasted traffic (both incoming traffic but passed on) as well as traffic addressed to this device!

MAC Address

The MAC address of the device is printed on the label placed below the data plate sticker on the bottom of the device.

Two additional MAC address stickers come with the device, one intended for placing on the top of the device before mounting and cabling and one for documentation purposes.

3.7 Device Status LEDs

The green and red LEDs B are used to signal the current status of the device. For a detailed description of the different LED states please refer to the corresponding software manual.

The green and red device status LEDs are directly connected to the IP Audio Module.
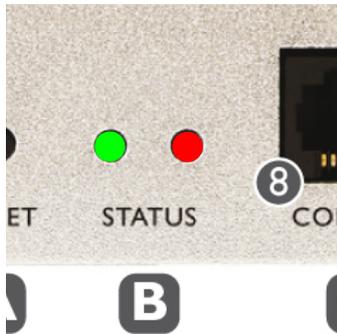
Both LEDs:
On, Off, Blinking depending on loaded software

3.8 Reset button

An reset push button A is directly connected to "software reset" input of the IP Audio Module. Intended use : reset (reboot) / factory defaults (see software manual for details).

4 Rebooting the device

4.1 Pushing the reset button

To reboot the device push the reset button for a brief moment.

4.2 Using a web browser

To reboot the Exstreamer P5 click the "REBOOT" button in the top menu line of the device's main web page.

Click on the underlined link "Reboot the device".

After approx. 5 seconds the following will be displayed.

4.3 Sending a Reboot Command

The firmware supports the rebooting of the device by sending a "REBOOT" API command. The command itself is "c=99" and can be transmitted using one of three API interfaces: CGI , TCP and UDP as explained below.

CGI Interface

Type in the browsers URL filed the IP of the device followed by "/rc.cgi?c=99" and hit the enter key to submit the command. The device will reboot immediately.
This command uses the HTTP web server port (default: 80) . Supply the correct port number if you change this setting.

TCP Interface

Send the command "c=99" followed by a „CR" (Carriage Return) character in a TCP packet to the device. The device will reboot immediately.
This command uses the TCP command port which is disabled by default (default: 0).
Enable the command port first and send the packet to the port number you have set.

UDP Interface

Send the command "c=99" followed by a „CR" (Carriage Return) character in a UDP packet to the device. The device will reboot immediately.
This command uses the UDP command port which is disabled by default (default: 0).
Enable the command port first and send the packet to the port number you have set.

4.4 Power-cycling the device

To reboot the Exstreamer P5 the voltage on the power supply connector E has to drop for approximately one second before coming up again.

5 Updating the device

5.1 Introduction

Barix preloads all devices with firmware which is current at the day of production. Barix constantly enhances the capabilities and functions and recommends to keep the firmware on the devices up-to-date.

The Exstreamer P5 features the "Update over network" method to update the firmware using a web browser.

Warning

If the network update is interrupted during the process (power or network loss) the device might become dysfunctional or even unreachable.

The only other remedy is to ship the device back for reloading the devices firmware and reverting settings to factory defaults.

Please keep that in mind when planning a remote "Update over network".

5.2 Checking the Current Version

To find out which version is currently installed check the informations next to the Barix logo on the devices main web page using a standard browser.
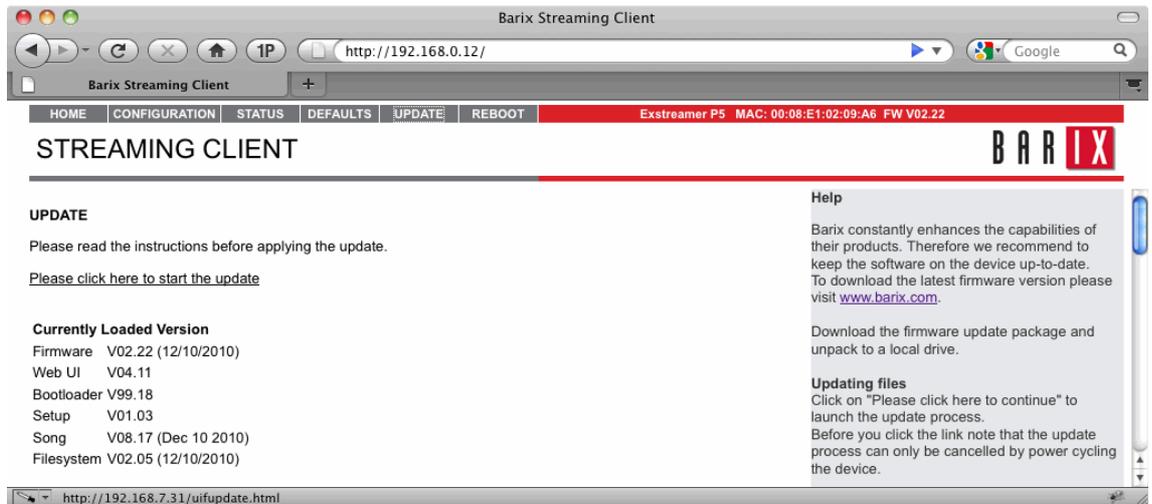
Version information

"Firmware" shows the version and the release date of the loaded firmware.

"Web UI" shows the version and the release date of the Web User Interface.

"Bootloader" shows the version of the boot loader firmware.

"Setup" shows the version of the setup table in the configuration EEPROM.

"Song" shows the version and the release date of the audio support module.

"Filesystem" shows the version and the release date of the File system module.

5.3 Downloading the latest firmware

Introduction

Barix ships the Exstreamer P5 preloaded with the application "Streaming Client". Depending on your needs or your usage of the device an ABCL application or the Exstreamer Standard Firmware might be the right choice. Follow one of the next two sections depending on your choice.

Standard Firmware

To download a firmware version please visit www.barix.com.

In the menu on the left side click on "**downloads**"

In the center column click on "**Streaming Client Firmware**" in the section "**Standard Firmware**".

In the section "**Firmware Update Kits**" verify if the version of the "**Streaming Client Update Kit**" is higher then the currently loaded (see version information in previous section). If there is a newer version click on the link to download it. Save the ZIP file and unpack it to a local drive.

In the section "**Firmware Documentation**" click on the release note and the user manual with the same versions as the "**Streaming Client Update Kit**" that you downloaded in previous step and read carefully before continuing with an upload to the device.

ABCL Firmware Applications

To download a firmware version please visit www.barix.com.

In the menu on the left side click on "**downloads**"

In the the center column under section "**Special Applications**" click on "**ABCL Applications (overview)**" to get an overview or click on of the links below the overview to choose an application directly.

Click the according link to download the ZIP file as well as the accompanying documents like the release notes and the user manual. Save the ZIP file and unpack it to a local drive. Read carefully the release notes and the user manual before continuing with an upload to the device.

5.4 Web Update Procedure

Calculate approximately 2 minutes to complete the "Web Update" procedure.

STEP 1

Open your web browser**,** type in the IP address of the Barix device and press Enter. Example: "192.168.0.12"

STEP 2
Click on the UPDATE button to enter the update page. You will see the following screen:
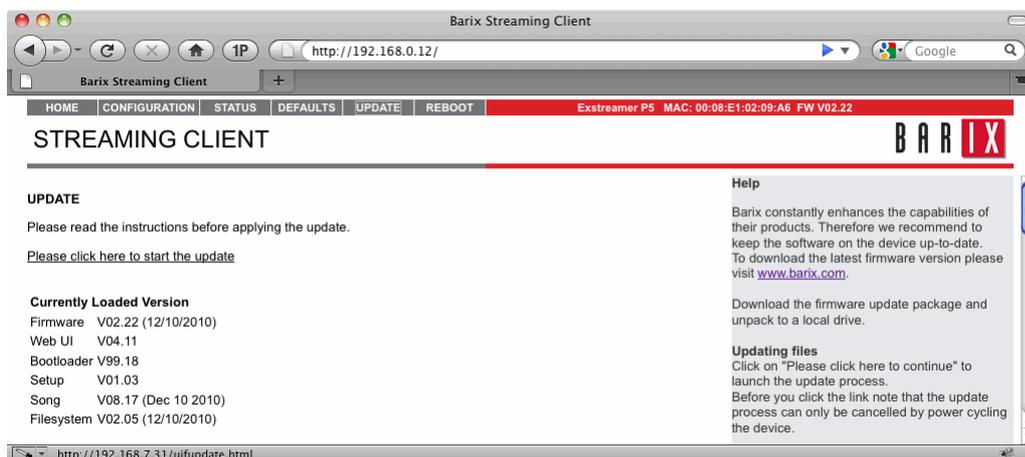
STEP 4

Click on "Please click here to continue" to launch the update process. The device will restart in a special mode called "Boot loader" and the following screen appears showing a number counting down from 4 to 0.

The device is restarting now. Please wait.

2

Please click here after the countdown if your browser doesn't support forwarding.

Upon start up the following screen appears:

Update Barix Bootloader V99.18 Nov 11 2010 Flash Pages: 31

Resource [   ] (Durchsuchen...)
(Upload)
(Reboot)
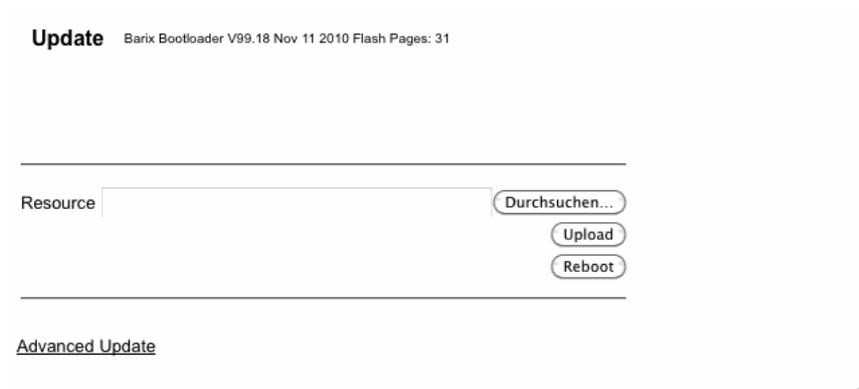
Advanced Update

STEP 5

Click on "Browse..." to select the file you want to update. The file is named **"compound.bin"** located in the folder **"update_rescue"**. Select the file and click on the "Open" button.

STEP 6

Update Barix Bootloader V99.18 Nov 11 2010 Flash Pages: 31

Resource [_kit_v0222_20101210/update_rescue/compound.bin] (Durchsuchen...)
(Upload)
(Reboot)
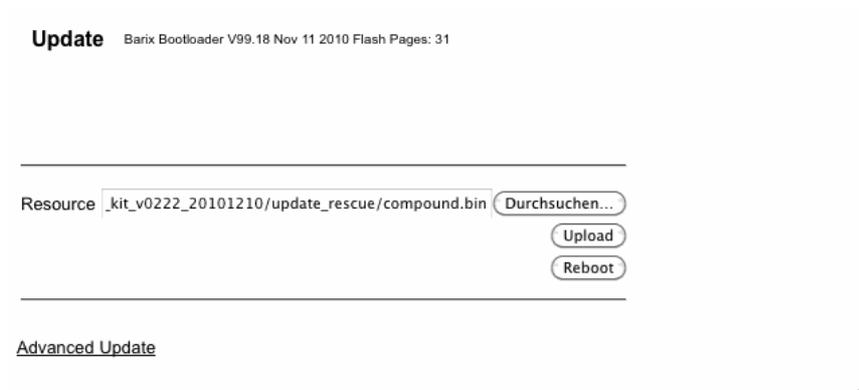
Advanced Update

Click on "Upload" to start the upload process which will take approximately 2 minutes.
After a successful upload the following window appears:

compound.bin successfully loaded.

Click on update before updating the next component or
unplug the power supply to reboot the device.

STEP 7

Click on the update link and then click on the "Reboot" button in the following window.
The following screen appears:

rebooting...

Click here to reload the main page.

STEP 8

After the device has rebooted, which takes a few seconds, click on the "here" link to reload the main page.

The device is now ready for configuration according to your needs.

Please read the according User Manual for informations on the configuration.

Note on Factory Defaults

The "Web Update" procedure does not change the current configuration.

Barix recommends nevertheless checking for correct parameters in the configuration as well as to set parameters for newly added features.

If you observe strange behavior after an update Barix recommends resetting the configuration to factory defaults (see chapter "Reverting to Factory Defaults" in the according User Manual) and to start over with the configuration of the device.

6 Mechanical Informations

Mechanical Dimensions Barix Exstreamer P5   (Rev. 1.0)
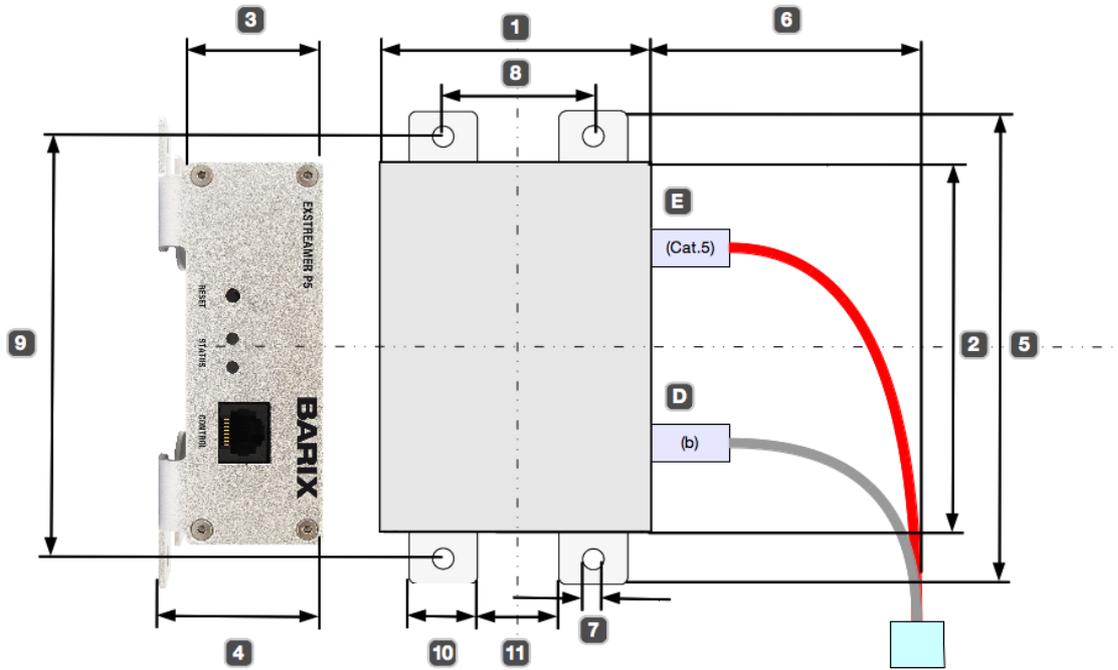
6.1 Dimensions and Weight

The Barix Exstreamer P5 aluminum enclosure measures 108 x 38 x 78.7 mm (Width **2** x Height **3** x Depth **1**) / 4.25" x 1.5" x 3.1" .
The Barix Exstreamer P5 weighs 280 grams / 9.88 oz. (without any cables/connectors).

6.2 Space requirements

The 2 mm / 0.08" thick front and rear plates are bent to serve as mounting feet increasing the overall Height **4** to 47 mm / 1.85".
The mounting feet increase the overall spacing Width **5** to 138 mm / 5.43".

The speaker connector **D** stands out approximately 11 mm / 0.43" and therefore increases the overall physical depth to 90 mm / 3.54". Standard Cat.5 cable plugs stick out 32 mm / 1.26". Depending on the plugs used and the suggested bending radius of the cables used on each side, the overall spacing depth is increased twice by approximately 80 mm / 3.15" **6** to a total of 239 mm / 9.4".

6.3 Mounting

For mechanical fixation the Barix Exstreamer P5 features mounting feet with a 2 mm /0.08" thickness and 4 holes with a diameter **7** of 6.4 mm / 0.25" intended for M5 to M6 screws. The holes are 45 mm / 1.77" apart in one direction **8** and 123 mm / 4.84" apart in the other direction **9** .
The feet have a width of 20 mm / 0.79" **10** and are apart from each other by 25 mm / 1" **11** .

6.4 Thermal considerations

The Barix Exstreamer P5 is a low power consumption device (15W max.) with an operating temperature range of 0 ~ 55° C / 32 ~ 131° F .
Nevertheless an adequate space around the enclosure is needed to allow for sufficient air flow in order to prevent overheating, especially when mounted in racks with higher power consumption devices or in a high temperature environment.

7 Technical data

7.1 Power supply input

Parameter	Min	Max	Unit
Supply voltage (Nominal)	48	48	VDC
Supply voltage (Absolute Maximum Ratings)	44	65	VDC
Power consumption max.		15	W
Isolation voltage		1500	V

7.2 CPUs / Memory

Parameter	Details
Central processing unit	Lantronix DSTni-EX, 256 KB zero wait state static RAM
Controller	PIC16F870 (Generator & Supervision)
Firmware & App. Memory	2MB Flash ROM (approx. 1700KB free for user data, varying depending on loaded firmware)
Configuration Memory	2KB EEprom

7.3 Network Interfaces

Parameter	Details
Connector type	RJ-45 female socket
Functionality	10/100 Mbit, full / half duplex, auto negotiation, auto MDI/MDI-X, PoE 802.3af
Status display	Link / Activity LED
Protocols	TCP/IP, UDP, RTP, SIP, DHCP

7.4 Serial Interfaces

Parameter	RS-232 (internal only*)	RS-485 (COM 1)
Connector type	Internal 8 pin header* (J2)	RJ-45 female socket
Signals	RxD, TxD, RTS, CTS (all TTL level), RS-485 receive enable, 3.3VDC, GND	A, B, 10VDC (100mA), GND, IR remote signal input
Baud rates	300 .. 230400	300 .. 230400
Data bits	7 or 8	7 or 8
Parity	No, Even, Odd	No, Even, Odd
Stop bits	1 or 2	1 or 2
Flow control	No, XON/XOFF	No, XON/XOFF
Power for external devices	+ 3.3 VDC, 20mA max. for RS-232 converter circuit	+ 10 VDC 100mA max. (self-resetting fuse)

* The RS-232 interface (COM 1) is internal (header J2) and for production purposes only !
Note that signal lines are shared with the RS-485 transceiver and the additional signal on pin 8 (/RS-485 receive enable) allows for disabling the RS-485 receive data by applying 3.3 VDC.

7.5 Audio & I/O Interfaces

Speaker Interface

Parameter	Details
Connector type	Weidmuller 2 pin male terminal
Audio output*	Speaker output 8 Ohm 5 Watt

* For details see following sections.

Audio Processor (Codec)

VLSI VS1053B Decoding features:

Format	Sampling rate / Bit rate & type
PCM 16bit linear	8, 16, 22.05, 24, 32, 44.1, 48 kHz
PCM 8bit logarithmic (µLaw / aLaw)	8, 16, 22.05, 24, 32, 44.1, 48 kHz
MPEG1 & MPEG2 Layer 3 (MP3)	8 to 48 kHz / 32..320 kbps, constant bitrate (CBR) and variable bit rate (VBR)
HE-AAC v2, SBR + PS (AAC+)	8 to 48 kHz / up to 576 kbps, with or without Spectral Band Replication (SBR), with or without Parametric Stereo (PS)
Ogg Vorbis	48 kHz / 500 kbps

Speaker output and D/A Conversion

Speaker (8 Ohm) output audio path and D/A conversion (Micronas MAS3587F) typical values:

Parameter	Value	Unit
Full Scale Output Voltage (Peak-to-peak) 8 Ohm load*	18.86	V_{PP}
	6.67	V_{RMS}
Max output power on 8 Ohm speaker	5.56	W_{RMS}
Frequency response (-3dB) @ 48 kHz sample rate PCM	20..11'600	Hz
Frequency response with treble +2 (+0.5dB @ 5 kHz)	20..13'000	Hz
Frequency response with treble +3 (+1.4dB @ 7 kHz)	20..15'000	Hz
Output signal-to-noise ratio (SNR)	-90	dB
Dynamic Range	90	dB
Total Harmonic Distortion (THD @ -3dBFS = 2.8W)	0.665	%
Total Harmonic Distortion (THD @ -0.4dBFS = 5W)	1.96	%

Speaker (16 Ohm) output audio path and D/A conversion (Micronas MAS3587F) typical values:

Parameter	Value	Unit
Full Scale Output Voltage (Peak-to-peak) 16 Ohm load*	19.53	V_{PP}
	6.9	V_{RMS}
Max output power on 16 Ohm speaker	3.0	W_{RMS}
Frequency response (-3dB) @ 48 kHz sample rate PCM	25..20'000	Hz
Output signal-to-noise ratio (SNR)	-76.5	dB
Dynamic Range	76.5	dB
Total Harmonic Distortion (THD @ -3dBFS = 1.5W)	0.296	%
Total Harmonic Distortion (THD @ -0.4dBFS = 2.72W)	0.296	%

*Output level software controllable

Built-in Parts

Parameter	Value	Unit
Green Status LED Current (max.)	6	mA
Red Status LED Current (max.)	7	mA

7.6 Mechanical

Housing

Aluminum case, with mounting wings (4 mounting holes 6.4 mm / 0.25" diameter)

Weight

280 grams / 9.88 oz. (without any cables/connectors)

Dimensions

Parameter	Width	Height	Depth	Unit
Device enclosure	108	38	78.8	mm
	4.25	1.5	3.1	inch
Including mounting wings and	138	47	78.8	mm
built-in connectors	5.43	1.85	3.1	inch
Including external plugs (approx.)	138	47	142.8	mm
	5.43	1.85	5.62	inch
Including external plugs and cables	138	47	239	mm
(approx.)	5.43	1.85	9.4	inch

7.7 MTBF Calculations

Parameter	Value	Unit
MTBF calculated according to	MIL217F	-
Calculated Supply Voltage	48	VDC
Calculated Temperature (ambient)	25	° C
	77	° F
Calculated Temperature (inside device)	40	° C
	104	° F
Calculation for Ground Mobile Device	n.a.	hours
Calculation for Ground Fix Device	250'000	hours

7.8 Environmental

Parameter	Value	Unit
Operating Temperature Range	0..55	° C
	32..131	° F
Operating Humidity Range (non-condensing)	0..70	%
Storage Temperature Range	0..70	° C
	32..158	° F
Storage Humidity Range (non-condensing)	0..70	%

7.9 Certifications / Compliances

Type	Certifications/Compliances
Complies with	RoHS, FCC B, CE B, C-Tick, UL (planned)
Immunity according to	EN55024, EN61000-4-2,-4-3,-4-4,-4-5,-4-6
Emissions according to	EN 55022
Product Safety according to	EN 60590

8 Ordering Information

8.1 Exstreamer P5 NoPSU Package

Barix ordering number **2010.9104**

Package contents:

- Exstreamer P5
- Screw block terminal connector (2 pin) for speaker
- Quick Install Guide

9 Legal Information

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