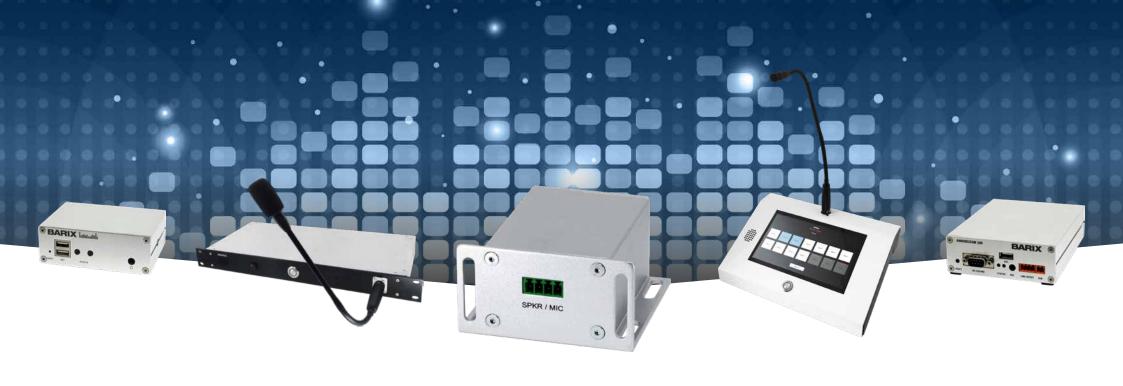
# BARIX

# AUDIO & CONTROL OVER IP

# **SOLUTIONS GUIDE**



# BARIX

Barix is a world leader in audio and control over IP technologies continuously helping AV integrators, broadcasters, distributed music providers and other professionals seeking cost effective solutions utilizing local or wide area IP infrastructure.

With almost 20 years of experience in application solving and with a reputation for rock solid products, Barix offers a wide spectrum of solutions for audio transport, paging, intercom and remote control over IP. The beauty of Barix products is that they are following open standards and are freely programmable, allowing you to adjust the functionality to the exact requirements at hand. Get inspired on the following pages and learn how Barix solutions can help you satisfy your clients.

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#### BARIX



Audio to Mobile Phones



Background Music



Internet Radio

Audio Transport



Intercom & Paging



SIP / VoIP / MOH Broadcast



Audio



OEM

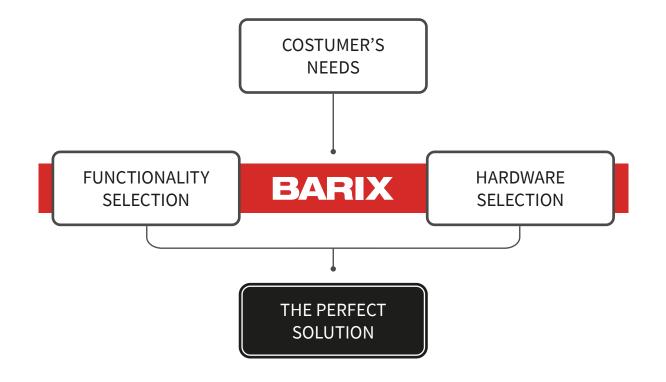


Automation & Control

# FINDING A SOLUTION WITH BARIX

Barix provides building blocks to address intelligent audio applications. By selecting the right functionality and combining it with the appropriate hardware, individual solutions for the task at hand can be built in the most cost effective way. This document provides insight into the products with its hardware components available from Barix. Barix gladly assists you in the solution finding by validating your selection or supporting you in selecting the right components. Should you not find the exact solution you require, contact Barix and we might be able to support you through our professional services.

Just contact presales@barix.com.

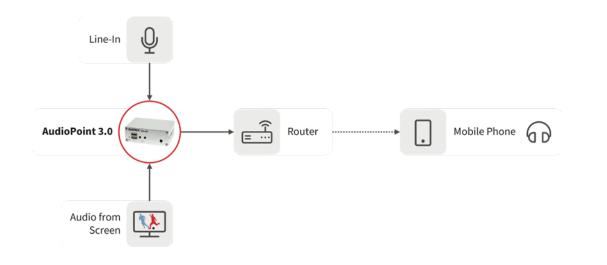


# AUDIO TO MOBILE PHONES

Barix Solutions Guide | 5

# NEAR LIP SYNC WI-FI STREAMING

Near lip sync streaming allows to broadcast audio live to the listeners mobile phones at seminars, conferences, in churches or at the point of sale. Live audio streaming from Barix is especially useful for applications such as giving a voice to a digital signage screen, for lobby TV and real time translation services. It also works for the hearing impaired and any installation where you need near-lip sync transmission.



#### Applications

- ✓ Live streaming to mobile phones at events
- ✓ Museum guidance with mobile phone or other devices
- ✓ Watching the news while working out in the gym
- ✓ Audibility support for hearing impaired

- ✓ Low-latency streaming to cell phone apps
- ✓ Single channel or multi-channel support
- Automatic recognition and dynamic listing of available channels in app
- ✓ Audio Format: PCM / 24kHz 16bit mono
- ✓ Optional QR code to select the channel
- ✓ IOS and Android compatible
- ✓ No public internet connection required
- Optional SDK for integration of receiving app into the customers application

#### Barix Solutions Guide | 7

# Barix Solutions for Near Lip Sync Wi-Fi Streaming



#### AudioPoint 3.0 Low-latency encoder for unicast streaming over WiFi connection.

The AudioPoint 3.0 streams live audio over various WiFi-routers to the cellphones of up to 50 users (respectively 250 users, depending

Works on AudioPoint M400

on the license). A unicast stream enables near lip sync audio streaming to the users' mobile phones via a free iOS and Android app. AudioPoint 3.0 encoder provides two monochannels and easily scales to multi-channel support. An optional SDK allows for intergration of the receiver app into any existing customer application.

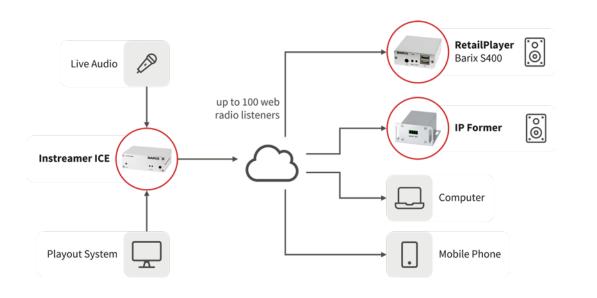


A solution built specifically for you.

# LIVE INTERNET STREAMING

The simplest solution to stream live audio to mobile phones and other devices is using a browser compatible streaming format. Users can directly join your stream with their standard web browser. The Barix Instreamer encoder converts the audio signal to be sent in the needed quality and format over the web. Dependent on the technolgy used, the absolute delay is in the seconds.

BARIX @



#### Applications

- ✓ Internet radio
- ✓ Live streaming of events to remote listeners

- IP live streaming to the browser of desktops or mobiles no decoding app required.
- ✓ Low latency encoding
- ✓ Line level input (mono left, mono right, stereo)
- ✓ Audio Level Supervision with SNMP Trap generation
- Shoutcast/Icecast capability

# Barix Solutions for **Live Internet Streaming**



#### **Instreamer ICE**

AAC+ / MP3 Audio over IP encoder with line level analog input (stereo) and integrated Icecast server.

The Instreamer ICE encodes analog audio into AAC+ or MP3 for streaming to an Icecast internet radio streaming service in the cloud.

#### Works on

Instreamer ICE M400

The Instreamer ICE also has an Icecast server built in and is able to feed up to 100 web radio listeners directly without the requirement to subscribe to an internet radio service provider.



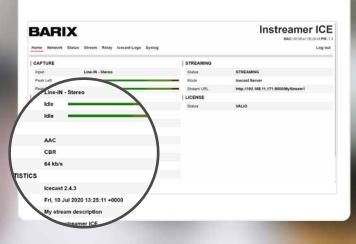
#### **Instreamer Classic**

Multiprotocol Audio over IP encoder with line level analog input (stereo), serial port, low latency, PCM G.711, G.722 and MP3 encoding.

The Instreamer Classic encodes analog audio sources in real time in a configurable format (MP3, PCM, G.711,G.722) and streams via Works on Instreamer

TCP, UDP, Shoutcast, Multicast RTP format to configurable destinations. Used in high quality broadcast applications, surveillance and VoIP markets alike, the Instreamer has proven its simplicity and reliability where Audio over IP encoding is required.

A solution built specifically for you.

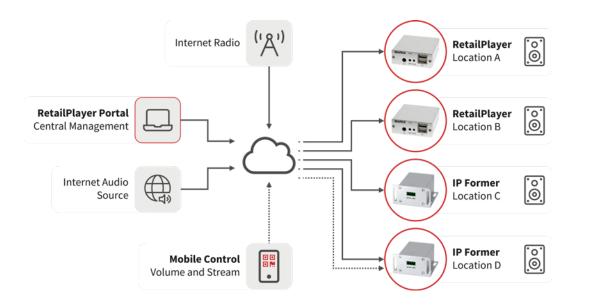




# **BACKGROUND MUSIC**

# IN-STORE AUDIO STREAMING & ANNOUNCEMENTS

Streaming for background music and messages to many sites is cost-effective in places where a internet connection is available and reliable. Barix RetailPlayer platform provides a complete solution with robust decoder units and a cloud configuration and management platform. Via QR code, the user can be given access to his player configuration for example to select a channel or to play a preloaded music file (e.g. happy birthday song). Managed firmware update via portal and many more features make RetailPlayer the most flexible distributed stream player solution on the market.



#### Applications

- ✓ Background music for In-store, gym, church, hotels
- Streaming audio and messages to many sites
- QR code based access to player management for channel selection, message playback, volume control and more

#### Features

- Management portal for configuration and online player status monitoring
- Latest generation, robust, cost-effective player hardware with internal storage and priority port for local announcement support
- ✓ Fail-save firmware update and OS recovery architecture
- Ready for customer specific requirements such as meta data based Digital Signage trigger
- ✓ Works with all standard streaming services
- Stand alone or cloud based, Proxy server for integration with 3rd party control software

For live announcement solutions, see Intercom & Paging on page 27

#### Barix Solutions for In-Store Audio Streaming & Announcements



#### RetailPlayer

Easily create a background music system with a simple and solid device.

The RetailPlayer is the best valued platform for multi-channel stream decoding of background music. It is a rock solid metal device that needs little maintenance and can be installed by almost anyone. The Works on RetailPlayer S400 RetailPlayer SP400 IP Former

online management allows for convenient control of the playout and the new advanced update mechanism secures fail-safe firmware updates. Its portal runs in the cloud which provides the configuration and management for all players at once (it can also be installed at specific premises).

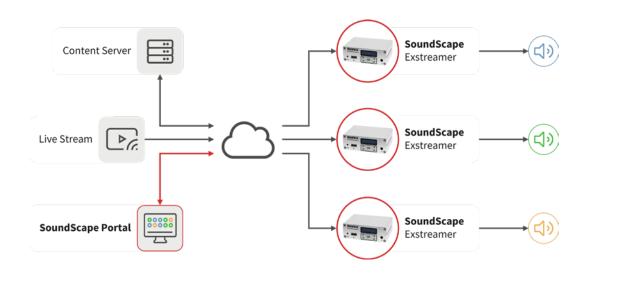


A solution built specifically for you.

## TURN-KEY BUSINESS MUSIC & ADS DELIVERY

SoundScape is a complete solution to manage and distribute audio over IP networks. With SoundScape, service providers have a single, centralized solution for content delivery and network-wide monitoring and management.

The SoundScape solution brings together the customer's audio library and a central management software portal with corresponding audio playout devices. Users can create playlists, and schedules featuring music, ads and promos from the head office, and configure and update player devices across the network. At the playout locations, Barix devices deliver high-quality audio content to speaker systems, with targeted advertisements seamlessly fading in and out of music streams and playlists. SoundScape leaves no wish open for even the most advanced background music distribution.



#### Applications

- Multi-location networks (retail, hotel chains)
- Background music with targeted announcements for entertainment, ads or information
- ✓ Universities, airports, railway stations, casinos
- Playout systems with strong reporting requirements (what content was playing when)

- Centralized management software (monthly subscription fee)
- , Reliable audio players with high-quality music reproduction
- , Dynamic ad insertions with seamless fade-in/out
- Seamless switching between live streams, stored playlists
- Alarm generation, network reporting for monitoring and troubleshooting

#### Barix Solutions for **Turn-key Business Music & Ads Delivery**



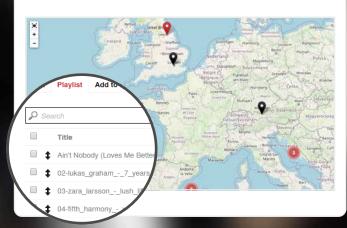
#### SoundScape

The turn-key solution for business music and adverts delivery.

SoundScape is a complete solution to manage and distribute audio over IP networks. With SoundScape, service providers now have a single, centralized solution for playlist **Works on** Exstreamer Soundscape

creation, advertisement scheduling and content delivery, network-wide deployment and indepth service monitoring and management, all in a single, simple to use, platform.

A solution built specifically for you.

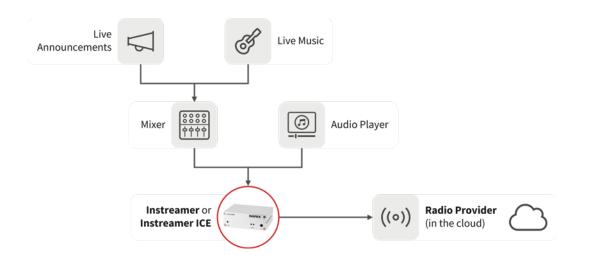


# **INTERNET RADIO**

Barix Solutions Guide | 15

# STREAMING AUDIO TO AN INTERNET RADIO PROVIDER

Barix Encoders allow to stream Audio in a variety of encryption formats to the internet. In order to allow many listeners to receive the channel simultanously, an internet broadcast service provider mostly based on Shoutcast or IceCast radio needs to be fed with the audio signal. Barix Instreamer encoders are the perfect solution for this application. They stream realiably in a variety of formats to most internet radio providers. Barix Instreamers: Easy-to-install and costeffective solution for professional internet audio streaming.



#### Applications

- ✓ Put your radio station on the internet
- ✓ Live streaming from universities, churches, events
- Corporate broadcast channel
- ✓ Shoutcast/Icecast Source Encoder

- ✓ Standard compliant IP streaming to the internet
- ✓ Low latency encoding
- ✓ Multiple stream generation
- ✓ Line level input (mono left, mono right, stereo)
- ✓ SNMP support for monitoring
- ✓ Shoutcast/Icecast capability
- ✓ Wide range of codecs supported

#### Barix Solutions for Streaming Audio to an Internet Radio Provider

Works on

Instreamer



#### Instreamer

Encoding Audio over IP - simply anywhere, anytime.

The Instreamer makes the streaming of audio over IP networks smooth and easy. It encodes any incoming audio signal into G.711,

PCM or high-quality MP3 streams and can send the stream to up to 32 different destinations across the LAN or over the internet. Instreamers support unicast, broadcast or multicast streaming along with peer-to-peer connections with other Barix devices. It can also be used for integration into wide audio infrastructures with Shoutcast, Icecast or an other third party software.



#### **Instreamer ICE**

AAC+ / MP3 Audio over IP encoder with line level analog input (stereo) and integrated Icecast server.

The Instreamer ICE also has an Icecast server built in and is

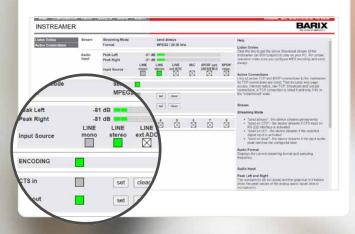
able to feed up to 100 web radio listeners directly without the

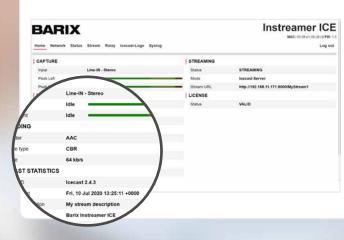
requirement to subscribe to an internet radio service provider.

The Instreamer ICE encodes analog audio into AAC+ or MP3 for streaming to an Icecast internet radio streaming service in the cloud.

Works on Instreamer ICE M400

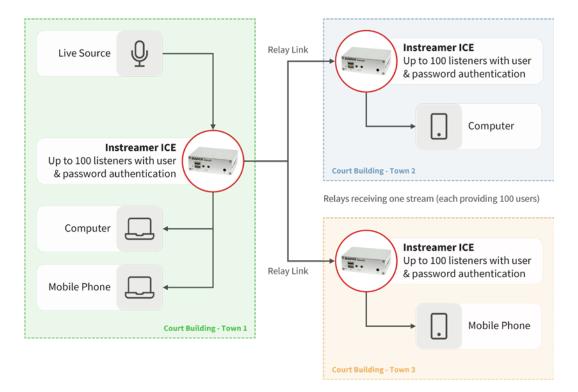
A solution built specifically for you.





## INTERNET RADIO IN A BOX

Barix Instreamer ICE is an IP Audio encoder that supports the highly efficient AAC+ as well as the widely adopted MP3 encoding standard. In additon to being an analog to IP audio encoder, the Instreamer ICE has a built in, easy-to-configure ICEcast server. This makes the Instreamer ICE a turn-key solution for internet streaming to up to 100 listeners. Using the relay function in the Instreamer ICE, additional instreamers can receive one stream for the original encoder and redistribute it to up to 100 listeners each. All they need to decode is a standard web browser.



#### Applications

- Corporate inhouse audio broadcast
- ✓ Live juristiction proceeding distribution to selected listeners
- ✓ Intranet audio distribution to multiple sites
- Church service live radio to hospitals
- Dial-in surveillance of rf radio communications (e.g. fire fighter<s)</li>

- ✓ AAC, MP3 encoding with VBR, CBR option
- ✓ Integrated ICEcast server
- ✓ Relay function
- ✓ Optional stream access password protection
- Low latency encoding
- Line level input (mono left, mono right, stereo)
- ✓ Simple to configure

# Barix Solutions for Internet Radio in a Box

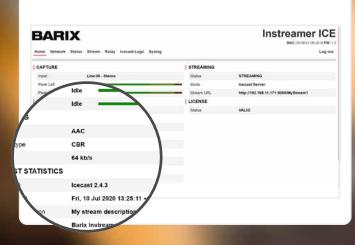


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The Instreamer ICE also has an Icecast server built in and is able to feed up to 100 web radio listeners directly without the requirement to subscribe to an internet radio service provider. ICEcast relay function allows to redistribute audio stream for efficient intranet distribution. Optional password protection enables access control on audio content. All this in a simpleto-configure reliable and cost effective device.



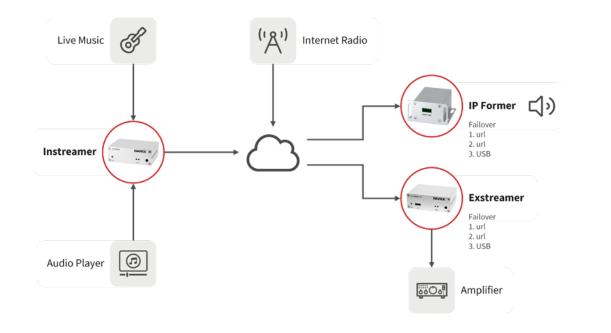
A solution built specifically for you.



Barix Solutions Guide | 21

# BRIDGE AUDIO BETWEEN LOCATIONS

Whether you need to bridge audio from one building to another, or whether you need to transport it accross town or even around the world, Barix standard IP and internet based encoder and decoders are the perfect solution. With analog to IP and back conversion, a wide selection of uncompressed or compressed audio codecs and a variety of transport methods, Barix bridges audio between locations easy-to-setup and highly reliable.



#### Applications

- Bridging audio between buildings
- ✓ Surveillance applications, bringing audio to a central site
- ✓ Transporting audio accross the public internet
- ✓ Connecting RF radio islands

- ✓ Support of compressed and uncompressed digital audio
- RTP/BRTP for internet based connections with only one fixed IP address
- ✓ Highly reliable MTBF >450'000h
- ✓ Short bootup time after power fail
- Auto configuration recovery at startup no interaction needed
- ✓ One-to-one or one-to many connections possible
- ✓ API for integration in 3rd party management systems

#### Barix Solutions for Bridge Audio Between Locations



#### **Streaming Client**

Streaming Client - Live audio and advertisement simply anywhere, anytime.

The Streaming Client Firmware turns Barix Exstreamer devices into professional network audio players, supporting MP3, A/u-Law, PCM and other audio formats. Streaming Client ensures a wide range of background music can be provided

Works on Exstreamer 1XX Exstreamer 2XX Exstreamer P5 Exstreamer 500

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by three failover audio sources, such as two URL addresses for streaming audio and locally via USB storage. The firmware can easily be integrated into an existing infrastructure with a command or web interface.





#### **IP Former**

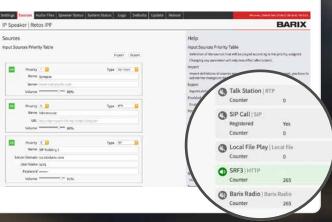
Makes any speaker an IP speaker.

The IP Former can be attached to any analog loudspeaker to add digital functionalities. It enables audio-streaming over the internet with a reliable, fast-reactive connection, storing capabilities and VoIP/SIP negotiation. Works on IP Former TPA400

Exstreamer M400 Exstreamer MPA400

Powered by PoE, it is as easy to install as any clever IP speaker. As a decoder it streams audio from radio stations, telephones and paging stations.

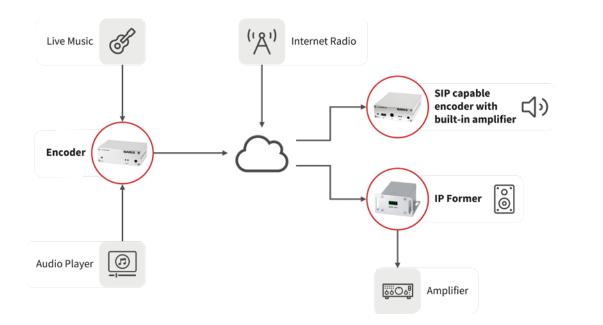
It is ideal for speakers to play background music, live announcements in schools, retail, offices, for emergency warning systems or triggered message playback and announcements over SIP.



# A solution built specifically for you.

### DIAL AN AUDIO LINK

Barix SIP solutions provide dialable end points for two way communications and remote I/O control integrating into an existing VoIP phone system. Barix devices work with most SIP VoIP solutions including Cisco Unified Communications Manager or Asterisk as well as peer-to-peer. Audio dial on push button and audio answer on call and OPUS codec support are just some of the features. Barix SIP endpoints come with Mic or line input, line or amplifed output, PoE or externally powered models. Barix talk stations PS1 and PS Touch have built in microphones and loudspeakers.



#### Applications

- ✓ Adding PA functions to existing VOIP telephone systems
- ✓ Adding single button call devices to a VoIP system
- Cashier's desk in retail outlets
- ✓ SIP based door phone panels and talk stations
- ✓ SIP addressable loudspeaker and alarm systems
- ✓ Alarm contact reader with audio connection dial

- ✓ Full-duplex phone communication
- ✓ SIP (RFC 3261) compliant architecture
- ✓ Supporting profiles for easy configuration
- Configurable destination number to call for every input contact
- ✓ Configurable call "pick up"/"hang off" timeout interval
- ✓ Configurable "call/close on level" feature
- ✓ Support for G.711 audio
- Priority-based notification audio messaging
- ✓ Configurable relay to switch on at call answer/call ring
- ✓ Transparent bidirectional Serial-To-TCP gateway
- ✓ Friendly profile based WEB configuration UI
- ✓ automatic network configuration (BOOTP, DHCP, IPzator)
- ✓ DTMF door open key sequence

#### Barix Solutions for **Dial an Audio Link**

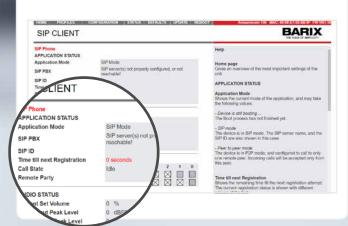


#### **SIP Client**

Turn your phone system into a full functioning SIP/VOIP paging and intercom solution.

SIP Client Application is the right firmware for your Barix device to integrate it into an existing VOIP phone system. SIP Client works with most SIP based VoIP solutions including Cisco Unified Communications Manager or Asterisk or on a peer-to-peer connection. A variety of hardware platforms support audio as well as I/O control over SIP.

Works on Annuncicom 60 Annuncicom 100 Annuncicom 155 Annuncicom 200 Annuncicom 1000 Annuncicom PS1 Annuncicom PS Touch Exstreamer 1XX Exstreamer 2XX Exstreamer P5 Instreamer Classic





#### **SIP Audio Endpoint**

SIP link negotiation protocol based Codecs for audio over IP, featuring mono and stereo Opus.

The cost-effective new MA400 and M400 SIP Opus Codecs combine the dynamic flexibility and ease of SIP-based link establishment with the quality and efficiency of

Works on SIP Opus Codec M400 & MA400

the open Opus audio compression format in addition to the standard SIP audio formats. SIP Opus codec is available in a bidirectional (mono) or uni-directional stereo version.

BARIX SIP OPUS CODEC APPLICATIONS	BARIX
BARIX SIP CLIENT HOME PAGE	Rain DP Case
Baris DP Application barban Cell Bater Remaits Party D Remains Telly D	Basis SEP Application States Basis have modified the publicly analation PUSUA code for the means of two com On the page year can use the call state and send some basis commands to the dealer.
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	Remote Party ID. Shows ID of the and usin of phone call. Otherwise It is empty when insuline.
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IT HOME PAGE	RTS IO Balan (how sime furing specific).
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us No	
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and Buttons	
Hangup Dial sip: chango_me	



#### **IP Former**

Makes any speaker an IP speaker.

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#### Works on

IP Former TPA400 Exstreamer M400 Exstreamer MPA400

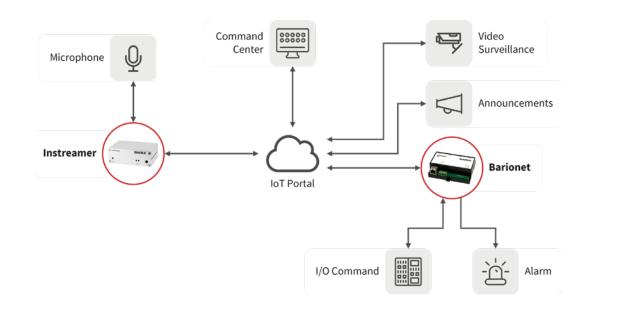
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It is ideal for speakers to play background music, live announcements in schools, retail, offices, for emergency warning systems or triggered message playback and announcements over SIP.

Talk Station   RTP Counter	
Counter	0
SIP Call   SIP Registered Counter	Yes 0
Counter	ocal file 0
SRF3   HTTP Counter	265
	<ul> <li>Local File Play   Lo Counter</li> <li>SRF3   HTTP</li> </ul>



Audio surveilance is a key element of any surveillance system. While cameras might have microphones, they reside high up. there is a need for independent audio surveillance channels close to the action. Barix audio encoders bring the audio into the surveillance system for recording and live monitoring. Adding talk out functionality to surveillance installation allows to address the intruder directly and has prooven the most effective way to resolve a situation. Generic I/O Barionet devices allow for remote switching of lights, alarms or gate locks.



#### Applications

- ✓ Remote audio surveillance
- Eavesdropping
- Live announcements to intruders
- ✓ Remote control for lights, alarm siren, gates and more

- ✓ Integration with Milestone XProtect
- Simple integration with other solutions
- ✓ Audio Recording and live channel
- Audio Talk out for announcements
- Remote I/O control for variety of functions
- ✓ Works on standard IP networks

# Barix Solutions for **Remote Audio Surveillance**



#### **Milestone Integration**

Milestone AV server solutions to surveil and safeguard doors and workplaces.

XProtect is a leading network video management software product, developed by Milestone Systems. Milestone introduced support for Barix Barionet, Annuncicom and Exstreamer product families into the XProtect platform, enabling Works on Exstreamer 1XX Exstreamer 2XX Exstreamer P5 Exstreamer 500

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customers to easily add intercom, paging and I/O monitoring and control functions to their VMS.

A solution built specifically for you.



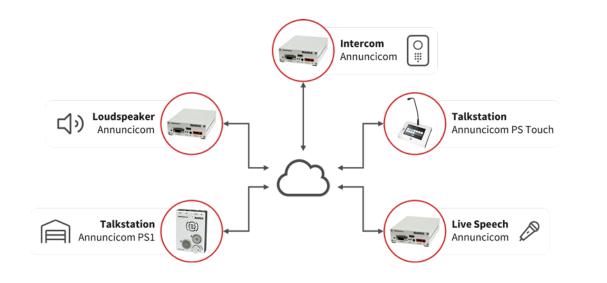


# **INTERCOM & PAGING**

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## PUBLIC ANNOUNCEMENTS

Barix offers a variety of PA/Paging solutions for Schools, factories, public places, public transport and more, based on the inexpensive Barix audio over IP products. Barix PA solutions area server less eleminating a single point of failure or a costly need for server redundancy. PA solutions are Zone capable and work on any standard IP infrastrucutre. Barix solutions are especially strong for environments that require low bandwidth as well as for applications where long distances need to be bridged, such as public transport or multi-site implementations.



#### Applications

- ✓ Store, school or factory announcement systems
- Wide area announcements for multi-site implementation such as public transport
- Combination of background music, local and wide-area announcements
- Any PA and paging that needs to work on the standard IP infrastructure

- PA and paging on standard IP networks
- ✓ Local and wide area applications
- Support of chime, pre- recorded and live messages with multiple master station
- ✓ Phone app for zone capable paging from the mobile phone
- ✓ Server free architecture No server required
- Easy configuration via Web interface of the devices
- ✓ Multiple talk stations available

# Barix Solutions for **Public Announcements**



# Any to All PA Perform quick and company wide announcements.

The Any to All PA Application from Barix provides a fast and easy implementation to stream audio via RTP to different locations. With this application, the audio stream starts to flow immediately upon pressing the target button, other targets can be added to the paging on the fly. For every button on the device, the stream can be configured as unicast to a specific IP address, as multicast (to group of targets) or as broadcast

Works on Annuncicom PS1 Annuncicom PS Touch Annuncicom 60 Annuncicom 100 Annuncicom 200 Exstreamer 1XX Exstreamer 2XX Exstreamer P5



#### **Simple Paging**

Make Public Address Announcements over your network.

The architecture, bridged using Simple Paging Firmware, supports a master-slave model with an extended interface to show and manage all connected devices, groups and zones. The installation can easily be done on the existing network and needs no proprietary server. Barix offers its Annuncicom PS1 and PS Touch as ideal master stations for Simple Paging.

Annuncicom PS1 Annuncicom PS Touch Annuncicom 60 Exstreamer 1XX

Exstreamer 2XX

Exstreamer P5

Google play Download on the App Store

Works on



#### **IC Paging**

Complete Intercom and paging / public address solution over IP networks.

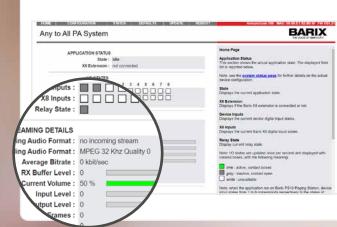
#### The Intercom & Paging Application firmware is the perfect solution for building intercom and paging systems over IP networks with a fullfeatured master-slave functionality. With this firmware, it's easy to define groups and zones or multimaster architectures to switch to another control office when the first one is not reachable (f.e. during day/ night shift). The same software can be set as ICMaster or ICClient after the installation.

#### Works on

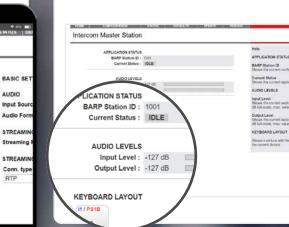
Annuncicom PS1 Annuncicom PS Touch Annuncicom 60 Annuncicom 100 Annuncicom 200 Exstreamer 1XX Exstreamer 2XX Exstreamer P5

BARIX

(to all targets in the local network or to all configured targets).







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# THIRD PARTY NOTIFICATION SYSTEMS

Extensive software solutions from 3rd party vendors are available for complete company wide emergency paging applications integrating the phone system, computers, wall displays and mobile phones. Barix devices can easily integrate with these 3rd party solutions either via the API or using Barix professional services. As end points in these systems, Barix devices can playout audio messages, bring back audio channels for intercom applications or control any input such as an alarm button or the alarm of a fire panel. Barix devices also support remote switching functions such as a the control of an alarm or light via relais.

#### Applications

- ✓ IP decoder for announcements feeding amplifiers or speakers
- Intercom device for two directional communcations
- Remote contact reading for example to signal fire panel alarm
- Remote relay switching for example to open gates or turn on lights

- Compatible with leading notification systems
- Easy integration into any 3rd party solutions
- ✓ Robust, long lasting with low power consumption
- ✓ Cost effective

#### Barix Solutions for **Third Party Notification Systems**



#### Singlewire InformaCast **Emergency Notification System.**

Singlewire's Informacast is natively implemented into multiple Barix audio devices. Informacast enables you to reach people wherever they are to enhance security, streamline communication and maximize efficiency. Singlewire and Barix

Works on Exstreamer M400 Barionet 100 Barionet 400 **IP** Former

unites notification technology into a centralized platform to help people communicate critical information more efficiently, safely, and reliably.



platform to help people communicate critical information

**Syn-Apps Revolution Emergency Notification System.** 

The next generationnotification with Syn-Apps Software and Barix Hardware. Enables to reach people wherever they are to enhance security, streamline communication and maximize efficiency. Syn-Apps and Barix unites disparate technology into a centralized

more efficiently, safely, and reliably.

Works on Exstreamer M400

Barionet 400 **IP** Former

> A solution built specifically for you.

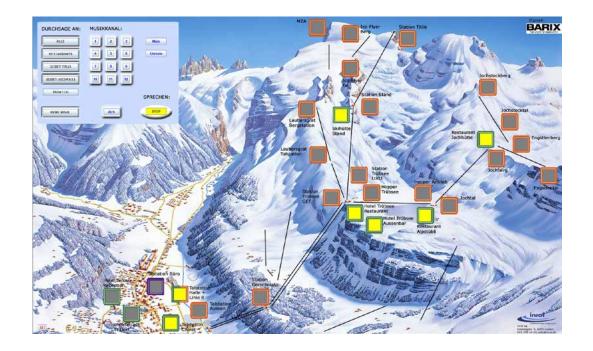






## CUSTOMIZED INTERCOM & PAGING INTERFACE

The Intercom & Paging application is the perfect solution for building intercom and paging systems over IP networks with a full-featured master-slave functionality. It's easy to define groups and zones or multi-master architectures to switch to another control office when the first one is not reachable (f.e. during day/night shift). The same software can be set as ICMaster or ICClient after the installation. The client version supports multichannel Background Music and interrupting voice announcements. On the master station, incoming calls can be showed on the display, set on hold or rejected. An additional ICgraph Java application allows customers to develop fully-customized graphical interfaces for control, visualization and management.



#### Applications

- Door intercom solutions
- Emergency announcement systems
- ✓ Large scale public announcement systems
- Background music with voice announcements
- ✓ Activate video surveillance when speaking at door

- No server needed
- ✓ Full or half duplex mode of operation
- Configurable group target buttons, each group can address 128 devices with multicast or broadcast
- With PS Touch extension 104 devices can be addressed directly with unicast
- ✓ Multiple master stations support (PS Touch/ICgraph)
- ✓ remote switching of client relay
- Features priority notification port

#### Barix Solutions for Customized Intercom & Paging Interface



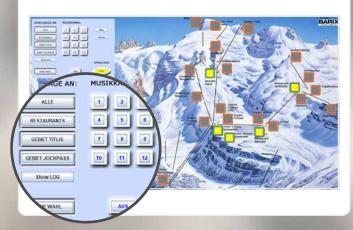
**ICgraph** User Interface Customization Software.

ICgraph is a Java based PC software to communicate (VoIP) to Barix Audio products. It also allows to remote control and remote

monitoring of Barix Audio and I/O products. ICgraph allows for customized user interface design and supports live and pre-recorded playout, status visualization and more. It is extremely flexible and it is free.

Works on

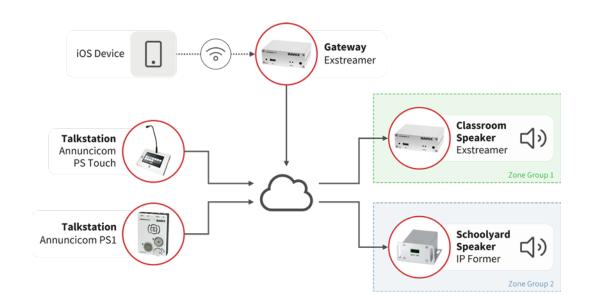
Windows



A solution built specifically for you.



Implement a complete paging system into your campus that includes a school bell. The installation can easily be done on the existing IP network. Barix audio and control products integrates with 3rd party School Bell control and management SW. Alternatively using Annuncicom PS1 and PS Touch as ideal master stations, the Simple Paging solution can be deployed. Thanks to the Simple Paging App, teachers can make public announcements right from their smartphones.



#### Applications

- ✓ School and campus communication system
- Corporate and factory mass notification and paging
- Zone based PA

- ✓ Announcements from paging stations or smartphones
- ✓ Superior audio quality
- ✓ Multi-zone system with busy/offline indication per zone
- ✓ Announcements selectively into one, some or all zones
- Low power and no maintenance cost
- ✓ Easily add zones and paging stations as you expand
- ✓ Supports simultaneous paging to independent targets
- ✓ Supports zoned background music playback
- Supports multiple mobile paging configurations: one set for the Principal, another for Security!
- ✓ Supports the features of 3rd party Bellcommander Software

# Barix Solutions for **School Bell & Paging**



BellCommander School System Third Party Integration.

Bellcommander by Acrovista is a powerful 3rd party scheduling software for bell sounds for schools or universities or companies. It can be also used e.g. for automated (repeated) advertisements and live announcements in shopping malls. Bellcommander seamlessly integrates Barix audio endpoints and control devices for example for distress buttons. Works on Annuncicom PS1 Annuncicom PS Touch Annuncicom 60 Exstreamer 1XX Exstreamer 2XX Exstreamer P5

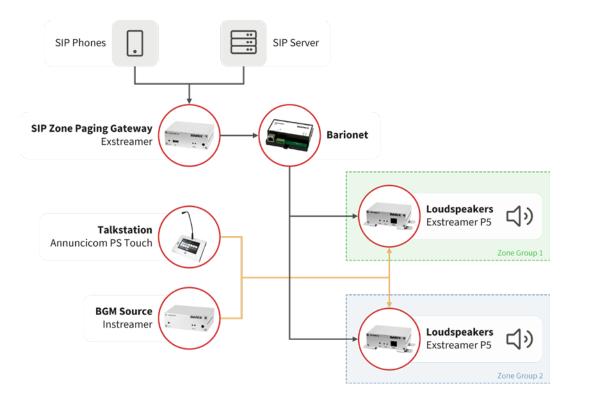
A solution built specifically for you.



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		Device Options Device Commands Stop All Audio

## HYBRID ZONE PAGING

Integrating an analog paging system with a SIP based VoIP Phone system is simple with Barix hybrid zone paging. This solution provides zone capable paging without the need for a SIP client for each paging point. Page routing is done in the Barix paging gateway and server. The big advantage of this solution: there is no complicated SIP server configuration required and with only one SIP client port required per simultaneous paging link. The solution overcomes the problems of prohibitive implementation cost for SIP solutions where the client needs to pay individual client licenses or each connected zone.



#### Applications

- Extending an analog zone paging solution with IP and a SIP VoIP based system
- Schools, hospitals, public locations, leisure venues that look at leveraging the existing systems
- SIP VoIP installations that need paging ability at affordable cost
- ✓ Background music over IP

- ✓ Elimination of complex SIP server configuration
- ✓ Saves on SIP client ports & licenses
- ✓ Paging to selected zones or all from SIP phone
- ✓ Up to 80 zones addressable
- ✓ Page to all or page to selected zones
- ✓ Chime support (internal chime on/off)
- Support of background music channels (with channel selection by zone)
- Emergency notification port on Zone Player
- ✓ Barix Exstreamer range as Zone Player supported
- ✓ Relay switching option for analog zone paging systems

## Barix Solutions for **Hybrid Zone Paging**



#### **SIP Zone Paging**

Hybrid IP and SIP paging solution combines the best of both worlds.

Running on existing Barix hardware, this new firmware enables system integrators to implement a zone capable paging solution without the need for a SIP client for each paging zone. Page routing is done in the Barix paging gateway and server. The big advantage of this solution: Works on Barionet 50 Annuncicom 200 Annuncicom PS Touch Exstreamer 1XX

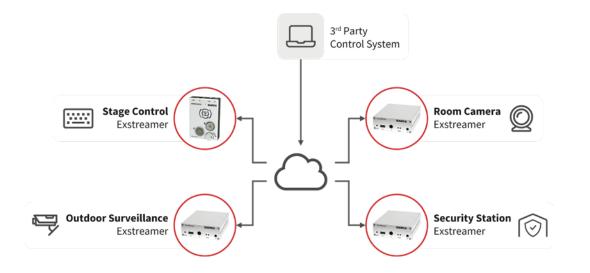
there is no complicated SIP server configuration required and only one SIP extension is required per simultaneous paging link. The solution overcomes the problems of prohibitive implementation cost for SIP solutions where the client needs to pay individual extension licenses for each connected zone.

Barix SIP IP Gatewa	Y V2.18I (01 Mar 2017)	BARIX
50	Maxe State SIP Mode SIP Extract(c) not reachable	Help: Hong and Constant of the result impacted selfings of the sort. Application Mine mains - Device a suff downsol - Device a suff downsol
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eft Output Peak Level	0 dBFS	<ul> <li>Relation increasing call</li> </ul>
ht Output Peak Level	0 dBFS	
out Peak Level	0 dBFS	
Reak Level	0 cE	

A solution built specifically for you.

## NTERCOM INTEGRATION INTO YOUR SOLUTION

The IP Intercom application is a user-friendly tool to quickly expand add IP audio to your infrastructure. It offers a full-duplex application for comfortable two-way communication. IP Intercom is highly adaptable and programmable to any customer's need. Audio forwarding is achieved on the OS driver layer, which enhances sound quality and lowers latency at startup. All parameters can dynamically be set on a simple command interface, or can be configured from a third party platform. If you require audio communications in your product portfolio, simply integate Barix IP intercom firmware and devices.



#### Applications

 Add IP based PA and intercom into existing or 3rd party systems

Barix Solutions Guide | 38

- ✓ Full-duplex communication
- ✓ Adding loudspeakers or mics to an existing solution
- ✓ Surveillance and workplace safeguarding

- Ready to use HW devices and modules (IPAM) for integration with existing hardware
- ✓ TCP/UDP command interface for remote control
- ✓ Sending syslog messages to remote host.
- DNS compatible for name resolution
- ✓ SNMP protocol featured for monitoring device and stream
- Streaming Destination IP could be unicast, multicast, broadcast address.
- ✓ Wide range of audio encoding is possible
- ✓ Configurable Audio Echo Cancellation
- The streaming destinations are dynamically changeable

## Barix Solutions for Integration into your Solution





#### IP Intercom IP Intercom and public announcement Integration into your system.

IP Intercom offers a full-duplex application for comfortable twoway communications in factories, office buildings or supermarkets. It can run as a stand alone solution or can be adopted for 3rd party solution integration. The firmware, which includes the Barix ABCL Programming kit, is highly adaptable and programmable to any customer's need and allows an easy integration of Barix devices into their systems and solutions. Works on Annuncicom 60 Annuncicom 100 Annuncicom 155 Annuncicom 200 Annuncicom PS1 Annuncicom PS Couch Exstreamer 1XX Exstreamer 2XX Exstreamer P5 Instreamer Classic

AUCIO STATUS Current Set Volume 501		Help Home page
Microphone Gain 210 A/D Amplifier Gain 0-d		Gives as overview of this most important settings of the unit. Autoro status
	difs	Shows the status of the following autio parameters:
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atput Peak Level		<ul> <li>Right Output Plank Lanel Deplays the current right output peak level in dSFS (dB full)</li> </ul>
ut Peak Level	-84 dBFS	scolik) Left Input Peek Level :
put Peak Level	-84 dBFS	Displays the correct full equal pauk level in dBFS (s0 hall ecale) - Right input Peak Level -
	0	Displays the connect right input years level in dSP3 (dB full enable)
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ng Stream	Not Active	<ul> <li>Deserving to (P-Port) Deplays consett set destination for outgoing stream.</li> </ul>
ng Audio from (IP:Port)	0.0.0.0:4444	<ul> <li>Recentling Stream: Displays the startus of Hocording silesiam. Whether devices is</li> </ul>
<b>3</b>		moonling any audie or not Receiving Audio InangP Parts

A solution built specifically

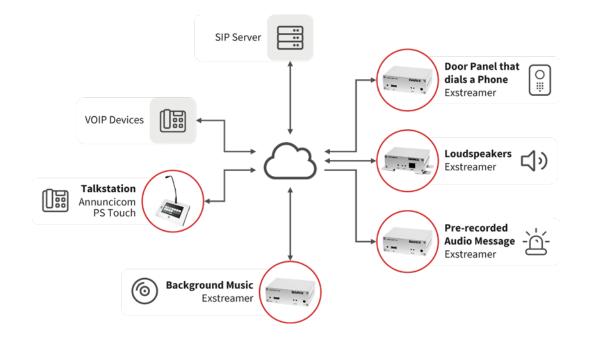
for you.





## SIP CAPABLE AUDIO ENDPOINTS

SIP Client Application is the right software to integrate Barix devices into an existing VOIP phone system. SIP Client works with most SIP based VoIP solutions including Cisco Unified Communications Manager or Asterisk. Using the Session Initiation Protocol (SIP), the client device receives a phone number in addition to its IP address, and can communicate either on a peer-to-peer connection or over a proxy-based connection (PBX). Ringtone and busy tone guarantees that the call remains confidential and the recipient really receives the information. Featuring background music, audio rebroadcasting and special DTMF commands to quickly manage the device, the SIP Client is easy to integrate into an existing telephone system. Four different relay ports can be configured to open doors, windows, or to activate machines while simultaneously speaking.



#### Applications

- ✓ Adding PA functions to existing VOIP telephone systems
- ✓ Adding single button call devices to a VoIP system
- ✓ SIP integrated frontend to amplifier or PA system
- ✓ SIP based door phone panels and talk stations
- ✓ SIP addressable loudspeaker and alarm systems

- ✓ Full-duplex phone communication
- SIP (RFC 3261) compliant architecture
- Configurable call "pick up"/"hang off"
- ✓ Configurable "call/close on level" feature
- Support for G.711 audio and a variety of other SIP supported codecs
- ✓ Priority-based notification audio messaging
- Configurable relay to switch on at call answer/call ring or via DTMF
- ✓ Friendly profile based WEB configuration UI

## Barix Solutions for **SIP Capable Audio Endpoints**



#### **SIP Client**

Turn your phone system into a full functioning SIP/VOIP paging and intercom solution.

SIP Client Application is the right firmware for your Barix device to integrate it into an existing VOIP phone system. SIP Client works with most SIP based VoIP solutions including Cisco Unified Communications Manager or Asterisk. Using the Session Initiation Protocol (SIP), the client device receives a phone number in addition to its IP address, and can communicate either on a peer-topeer connection or over a proxybased connection (PBX). Works on Annuncicom 60 Annuncicom 100 Annuncicom 200 Annuncicom 200 Annuncicom PS1 Annuncicom PS Couch Exstreamer 1XX Exstreamer 2XX Exstreamer P5 Instreamer

SIP Phone APPLICATION STATUS		Help
Application Mode	SIP Mode	Home page
SIP PEX	SIP server(s) not properly configured, or not reachabled	Gives an oventew of the most important settings of the unit.
SIP ID		APPLICATION STATUS
Timume	0 %	Application Mode
Peak Level	0 dBFS	Shows the current mode of the application, and may take the following values:
ut Peak Level	0 dBFS	- Device is still booting The Boot process has not finished yet.
Peak Level	0 dBFS	- SIP mode
		The device is in SIP mode. The SIP server name, and the SIP ID are also shown in this case.
Peak Level	0 dBFS	Peer to peer mode
		The device is in P2P mode, and configured to call to only one remote peer. Incoming calls will be accepted only from
K8 I/O STATUS	0 2 1 0	this poer
s	7 6 🛛 🖓 🔲 🔲	Time till next Registration
		Shows the remaining time till the next registration alternot The current recentration status, is shown with different



#### **IP Former**

Net

Use

Use

Makes any speaker an IP speaker.

The IP Former can be attached to any analog loudspeaker to add digital functionalities. It enables audio-streaming over the internet with a reliable, fast-reactive Works on IP Former TPA400 IP Former MPA400

connection, storing capabilities and VoIP/SIP negotiation.

Powered by PoE, it is as easy to install as any clever IP speaker. IP Former can act as SIP end-point and with its microphone input act as a complete bi-directional communications device.

It is ideal for speakers to play background music, live announcements in schools, retail, offices, for emergency warning systems or triggered message playback and announcements over SIP.

Settings Sources Audio fi	les Sources Status Status	Logs Update Reboot	
P Speaker		BAR	IX
Device Alias IP Forme		Help	
Master Volume	21%	Device Alias	
etwork Settings		Define a alias for the device. Useful for distinguishing multiple, on the same network and browser favorites. Need to netood pa- view charges.	
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		Use SoniclP*	
ork Settings		If set its "yes", the device will ampound its IP address over the a output. Overall: "yes"	ude
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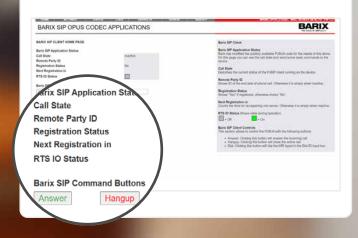
#### SIP Audio Endpoint

SIP link negotiation protocol based Codecs for audio over IP transport.

The cost-effective new MA400 and M400 SIP Opus Codecs combine the dynamic flexibility and ease of SIP-based link establishment with the quality and efficiency of

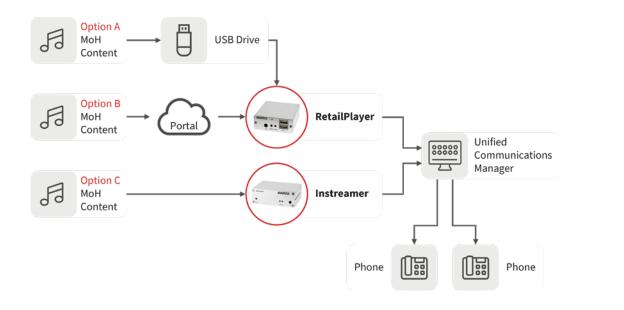
#### Works on SIP Opus Codec M400 & MA400

the open Opus audio compression format. These SIP codec devices encode or decode audio signals using the latest SIP client implementation and support a variety of codecs from G.711, G.722 to the open standard Opus codec, a royalty-free audio compression format known for exceptional quality and reliability in interactive speech and music transmission over IP.



## MOH INTO PHONE SYSTEMS

Barix supports Message/music on hold implementations with a variety of solutions. Barix Instreamer allows to encode an existing analog source into an IP stream that can feed the MoH functionality of new IP based PBX implementations. RetailPlayer provides a platform to distribute MoH content from a central side to many locations acting a source into MoH systems providing remote content update capabilities as well as remote management for MoH to many sites. Barix Exstreamer with a USB stick works as a simple local MoH player into the analog input of a phone system.



#### Applications

- Maintain current MoH source setup by using Barix Instreamer as MoH encoder to feed audio into Cisco Unified Call Manager and other pure Ethernet based phone systems
- Instreamer as reliable playout source with USB stick for simple content update
- RetailPlayer as remote managed and remote content updated distribution system for MoH messages to many sites

- Streaming in different formats (MP3, G.711) supporting different quality and compatibity requirements
- Easy content update from remote via portal (RetailPlayer) or by exchanging a USB stick (Exstreamer)
- ✓ Autostart after power failure for maintenance free operations
- ✓ Reliable hardware for hassle free long term operations
- ✓ Web interface for simple configuration and setup
- ✓ Applications notes available for fast implementations

## Barix Solutions for **MOH into Phone System**



#### **Instreamer Classic**

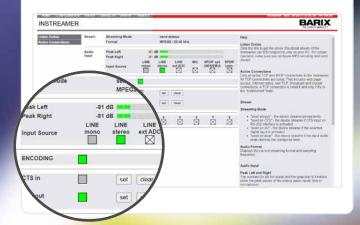
Encoding Audio over IP - simply anywhere, anytime.

Works on

Instreamer

The Instreamer makes the streaming of audio over IP networks smooth and easy. It encodes any incoming audio signal into G.711,

PCM or high-quality MP3 streams and can send the stream to up to 32 different destinations across the LAN or over the internet. Instreamer is the perfect encoder to feed existing analog MoH sources into a new IP based PBX system. It is maintenance free and once configured, automatically starts up for example after power failure and continues its operations without the need for interaction.





#### RetailPlayer

Easily create a background music system with a simple and solid device.

The RetailPlayer is a cloud managed platform to deliver streaming of background music to many lications. For MoH one particular feature of RetailPlayer is of special interest. RetailPlayer portal allows

#### Works on

RetailPlayer S400 RetailPlayer SP400 IP Former

to downlaod an individual playlist to each player or a group of players that can be updated from remote via the portal. Without valid stream connection, RetailPlayer plays this

playlist. This can be used to build an MoH system with remote update capabilty and allows to manage many locations. The ideal solution for MoH to many sites with common and individual content.





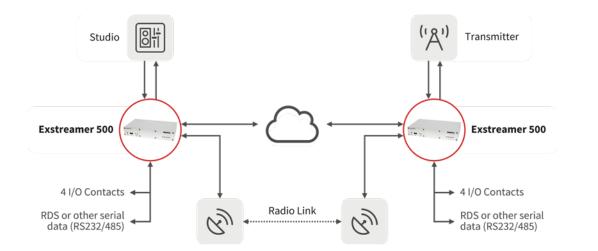
## A solution built specifically for you.

## AUDIO BROADCAST

## BROADCAST STL & SSL & REMOTE BC CODECS

ALLEEEEEEEEEEE

Professional Multiprotocol IP Audio de-/encoder with I/O, balanced audio. Support of Internet Radio and VoIP (SIP, RTP) codecs and protocols make the products the ideal choice for broadcast professionals. STL and SSL links can be set up inexpensively using Barix Codecs and the optional Reflector service. Remote contribution links with SIP in combination with the high-quality, open audio codec OPUS provide the most cost-effective solution for remote broadcasting in the post ISDN area.



#### Applications

- ✓ Studio-to-Transmitting station connection
- Studio-to-Studio link for live interviews
- Syndicated radio distribution
- Remote broadcasting

#### **Features**

- ✓ Web based, "easy to use" configuration
- Optional Reflector service for peace of mind setup and operations

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- Wide range of audio formats including highest quality uncompressed PCM
- Multi destination streaming
- Serial tunnel and integrated Relay and contact Inputs for remote switching and control
- No need for fixed IP address at the transmitter or remote location thans to BRTP protocol
- ✓ Quality of Service (QoS) and (DSCP)
- ✓ Fading effect for new connections
- ✓ Local content playout for for stream failuer
- ✓ Customizable with BCL programming language
- ✓ Reliable and long lasting

#### Barix Solutions for Broadcast STL & SSL & Remote BC Codecs

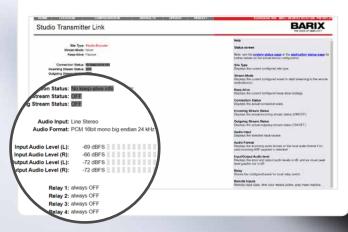


### Studio Transmitter Link.

The Barix Studio Transmitter Link (STL) Solution is a fast and reliable implementation to stream audio in full-duplex on uni-directional PCM or MP3 between a broadcast studio and a transmitter device in another physical location. RTP over UDP

#### Works on Exstreamer 500 Instreamer Exstreamer 1XX Exstreamer 2XX

protocol guarantees low latency and strong reliability of the audio stream. The application can stream to eight unicast or multicast destinations, or can send as a broadcast. Several administration tools like keep alive handshake, contact closure tunneling, SNMP traps, Serial gateway, multicast and DNS are supported. Dependent on the hardware, remote I/O and relay control as well as RS-232 tunneling is supported. Peace of mind Reflector service makes the deployment as easy as possible (See: Broadcast Link Cloud Service).





#### **SIP Opus Codec**

SIP link negotiation protocol based Codecs for audio over IP transport.

The cost-effective new MA400 and M400 SIP Opus Codecs combine the dynamic flexibility and ease of SIPbased link establishment with the guality and efficiency of the open

Works on SIP Opus Codec M400 & MA400

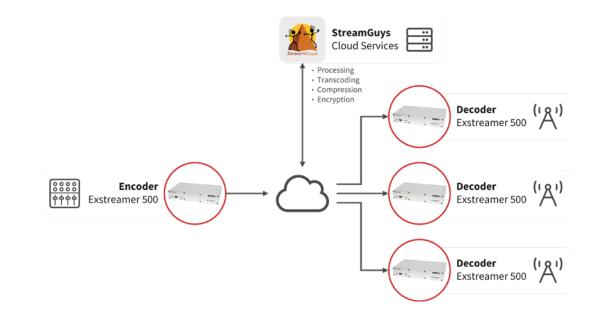
Opus audio compression format. The SIP Opus Codec devices encode or decode audio signals using the open standard Opus codec, a royalty-free audio compression format known for exceptional quality and reliability in interactive speech and music transmission over the Internet. With the auto-answer and "connect on contact closure" feature (contact closure on MA400), the device is ideal to replace ISDN based codecs in remote broadcast applications. Interoperabilty with many 3rd party codecs is provided thanks to the SIP and OPUS standard compliance.

BARIX SIP OPUS CODEC APPLICATIONS	
BARIX SIF CUENT HOME PAGE Baris SIF Application Burius	Baris 10P Cleant Baris 10P Application Status This is an emotified the publicly analyzing PSUA cope for the reach of this open
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	Ramoto Party ID Strong CJ of the and point of phone call. Otherwise It is anyly when coacline. Residuation Dates
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Call State	RTS-IO Status Once: minin furing specifics - Of - On Barls SIP Class Controls
Remote Party ID Registration Status	This such a strength of a sensitive the PAUCA with the failure ray notation: • A summer Charlong this lactors will remain the successing set • Harrync, Charlong the failure will state the states call • Data: Charlong their bottler will state the URI speed in the disk D speed how
Next Registration in RTS IO Status	
Barix SIP Command Buttons	
Answer Hangup	

## A solution built specifically for you.

# BROADCAST LINK CLOUD SERVICE

Reflector is a turn-key solution for streaming audio from an encoder and replicating it to an unlimited number of destinations through the public internet. The solution is cloud based and uses Barix codec devices for encoding and decoding. With Reflector service, no fixed IP address and complicated network and firewall configurations are nessessary. The user simply identifies his source and his destination in the configuration window and the system does the rest.



#### Applications

 Compressed or uncompressed streaming for STL, SSL or Remote contribution

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✓ Temporary high quality audio linking over hte internet

- ✓ Simple to setup via intuitive dashboard
- ✓ Reliable service provided by Streamguys.com
- No fixed IP addresses or complicated network configuration required
- ✓ Free iPhone listener app
- ✓ Configurable low latency (0.1 30s)
- ✓ Compressed MP3 or uncompressed PCM 44.1 kHz supported
- ✓ Transmission of meta data, for example for add break triggers
- Transmission of contact closures and RS-232 tunneling
- Cloud based device management
- ✓ Simple system setup
- ✓ Free iPhone listener app

#### Barix Solutions for Broadcast Link Cloud Service



#### Reflector

Uncompressed streaming for the Reflector service, including metadata (with StreamGuys).

The Reflector service allows you to simplify the management of your favorite Barix Exstreamers and Instreamers in STL(Studio **Works on** Exstreamer 500

Transmitter Link) applications either transmitting a compressed stream (MP3) or uncompressed digital audio in PCM format. After configuring how you'd like your devices to communicate with one another in the intuitive Reflector dashboard, your devices will seamlessly communicate with one another once you connect them to the Internet from anywhere in the world.

roject type: Uncompressed		Projecta Project Testing
reate Device		
Device Data		
Name	MAC Address *	
Parameter		Line in
Audio input source	Line in	
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Quality	PCM stereo 44.1	PCM stereo 44.1kHz 16
TCP port for metadata	12301	PCIVI Stereo 44. TKH2 16
Use Relay one to	alarm when not	streamina 12301
		alarm when not streamin

A solution built specifically for you.

## **AUTOMATION & CONTROL**

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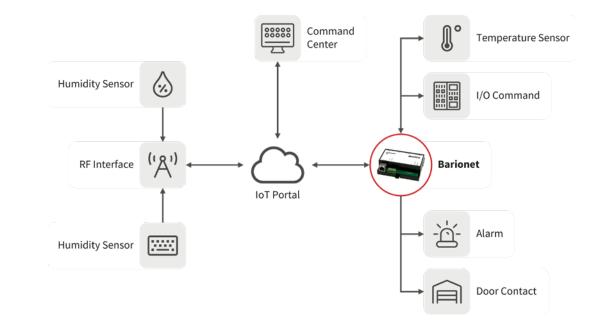
Burging



## BARIONET DEVICES AND FIRMWARE

Universal, programmable I/O device server for automation engineering in private houses, public buildings, in public transport and network infrastructures. The Barionet device covers a wide range of automation applications for machine control (RS232 and RS485), temperature monitoring, door-light steering, alarming and many more. Analog and digital I/Os allow to address even the most demanding applications. Barionets are programmable with a simple scripting language (BCL or Lua) and therefore are highly adaptable.

Programming allows the configuration of hardware interfaces like network, I/O, relay, temperature sensor, Wiegand, Serial and 1-wire. On the control side HTTP/CGI, UDP, TCP, SNMP and Modbus/TCP are supported, other protocols can be added. The Barionet products are highly reliabel and enable remote control and monitoring of infrastructure over the network.



#### BARIONET DEVICES AND FIRMWARE

#### Applications

- Industrial control and monitoring, machine control, serial, temperature, analogue and digital I/O
- ✓ Home automation for control of thermostats and lighting
- Access control and security systems driving horns or lights via relays or I/O
- Environmental monitoring for power stations, industrial plants and buildings

#### Features

- ✓ Control and monitoring via Modbus, HTTP or SNMP
- ✓ Relay outputs, digital outputs, analog or digital inputs
- Included webserver to store own applications/pages
- ✓ Sserial ports for RS-232 and RS-422/RS-485 interfaces
- ✓ Configurable SNMP traps, e.g. for input state change
- ✓ DIN rail mounting capability
- BCL programmable (Barix Control Language) or Lua programming on Barionet xxx
- Free programmable 1-wire interface on Barionet50, allows to add own 1-wire drivers
- All input and output functions are addressed using a common I/O address map
- Digital input with detection frequency up to 30 Hz
- Barix X8 Expansion Module provides 8 independent inputs or outputs
- Barix R6 expansion module provides 6 additional strong voltage relays (<250V / 10A)</li>
- Barix I/O 12 module provides 12 opto-isolated inputs and 12 outputs
- ✓ USB interfaces for data storage or sensor extensions

#### Barix Solutions for Automation & Control



#### **Automation and Control**

Opening a channel, switching a device, controlling a machine. Barionets are IoT servers that allows to monitor and control a wide area of applications and devices reliably over the internet.



#### **Access Control and Security**

In combination with an intercom solution, the Barionet can securly trigger automated actions such as opening a door. In combination with a video surveilance system, automated actions can be used to start an alarm or start recording.

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Barix offers the customisation of existing products and the creation of new products on the base of our powerful audio modules. Equipped with the knowledge and experience to deliver another successful OEM product from production.



We have quick turnaround times



We create prototypes instead of talking



We can build on our powerful audio modules

#### Barix OEM Solutions Components



#### IP Audio Module (IPAM)

The IPAMs are specifically designed to make custom solutions easier and faster to deliver. It is supporting a vast range of protocols, codecs and interfaces out of the box. The IPAM adds a wide range of audio functionalities to extend applications with SIP/VoIP, intercom and paging as well as high quality music distribution.



#### **Electronic Development & Production**

In engineering custom electronic devices or by adapting an existing product we can rely on our 20 years of expertise. Efficiency and value are key to us. We carefully choose our manufacturing partners regarding quality-control, durability and delivery times.



#### **Software Development**

Today a product is as good as it's software. We can tailor a solution to your every need and offer a crucial insight on the best route to take to get the desired result. Building on a robust and prooven base, we can develop your audio or control application or device firmware to be reliable and cost effective.



#### **Customized Product Design**

Barix produces parts and devices that can be fully customized and labeled for the own product portfolio. Due to our close production relationship almost all products are eligible for customization. Barix designs have proven to stand the test of time.



## AT THE CORE OF AUDIO EXCELLENCE: IPAM400

Powerful and versatile codec (encoding/decoding), Linux based and programmable with a wide range of programming languages, including C++, LUA, Python. Featuring Quadcore Cortex<sup>™</sup> A7 processor, USB, serial, digital I/O, WiFi, Mic+Line I/O I<sup>2</sup>S and more. Barix can provide the IPAM400 OEM with a Yocto image with advanced firmware download and recovery functions. Otionally we can also provide a complete firmware for example as a fully functional SIP endpoint for integration into your equipment.

#### Applications

- ✓ Audio over IP codec frontend
- ✓ SIP Audio interface for 3rd party equipment
- ✓ Audio streaming device
- Door access terminal
- ✓ Intercom frontend for integrated Train intercom solution
- ✓ Intercom front end for drive-throu
- ✓ Audio recording device
- ✓ Emergency call column
- ✓ Audio playout device for earthquake or suami warn systems
- ✓ And many more …

- ✓ Integrated SoC with ARM Cortex quad core CPU
- Stereo line input and output, 0dBuStereo Line in and outputs
- Microphone input (coil, powered or passive capacitive, balanced or unbalanced)
- ✓ I2S input and output (192k capable)
- ✓ 10/100Mbit Ethernet port (with PHY)
- ✓ SD/TF card slot
- 🗸 16MB SPI Flash
- ✓ TTL level UART

- ✓ USB2.0 OTG interface, two USB2.0 Host
- ✓ Dallas 1-wire interface (e.g. for Real Time Clock)
- 🗸 7 GPIOs
- Small form factor
- Low Power consumption, runs off a single
   +3.3Volt DC power source
- Yocto firmware with advanced firmware and recovery functions
- Optionally available solution implementations such as SIP Client, RetailPlayer and more

#### Start your IP Audio project with somone with experience.

A modular set of reliable components that are proven to work in our own devices.

Examples of what we can build:



Individual speaker upgrade with IP capability



SIP capable devices



```
Audio Streaming over IP
hardware
```



Paging and Intercom solutions



Color customisation and labeling



Broadcasting equipment replacements

Software add-ons into other

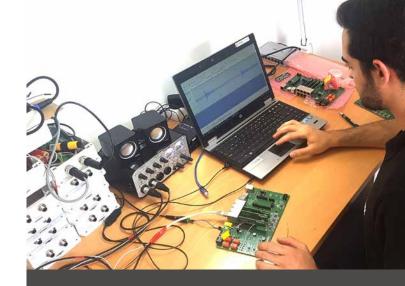
systems



IP frontend in amplifiers



Functional enhancements of existing products



#### **Excellence in Engineering**

The Barix Professional Service team brings more than 16 years of experience in IP-Audio streaming, VoIP and IoT product development. We help shorten the time to market by providing fast, cost-effective and robust development services, and to deliver solutions tailored to your needs.

Our in-depth industry and technical experience brings exceptional value to the project, and our team is fully committed to delivering robust solutions within scope, time and cost. Engage with Barix Professional Services today to discuss how we can efficiently fill the gaps in your product portfolio, and accelerate your time to market.



#### Programmability

Optional possibility to add features by adding code to existing devices.

While each device is customizable by Barix, these devices provide a dedicated SDK.

API

Ŭ

**Portal** A portal to manage the device remotely is provided by Barix for free.

SIP

Protocol for network telephony, paging, establishing remote audio connections.

#### HTTPS/SSL

High standard encryption to secure the communication between device and server.

#### Tue

SNMP

Trap generation allows to monitor and control Barix devices through SNMP.



**SNMP** 

IO Support Relay or contact closure available to control connected IO-devices.



**WiFi Option** Available with or capable of running with a WiFi antenna.



#### Low Latency

Audio transmission can be sent and recieved almost instantly by the listener.



#### Cloud / Wide area Network

These devices are especially built to work in cloud environments.



#### **Highly Secure**

Extra layer of protection with customizable user account management.



#### Redundancy

Built in redundancy for double the security to always have one part working.



opus

#### **Extended Memory**

Additional memory is built in to save and play audio files or data.

#### Opus

The new standard for audio codecs which allows high quality transmission.



lcecast

Streaming server built in to allow to set up an internet radio stream instantly.



#### 3rd Party

Work natively with a third party. Other products can be extended on request.

## FEATURE AND ICON GLOSSARY

We build every single product to be energy efficient, long lasting, customizable and configurable through a user-friendly interface.

In addition, each product in this guide has a few icons that illustrate core features.

**ANALYSIS AND QUICK DESIGN** 

Demonstrate

Refine

Develop

**PROTOTYPE CYCLES** 

## A PARTNER FOR YOU

Barix has been the preferred solution partner for many clients because, if Barix does not offer it, we are willing to make it. With our development process that is focusing on fast prototyping and with our experience and most importnat our tool set of hardware and software components, we have been able to impress customer all over the globe with our speed, low cost and compelling solution to their problem. Barix has designed solutions for small companies to fortune 500 ones.

Do you have an audio over IP or control over IP related problem to solve? Challenge us - you wont regret it.



## PROFESSIONAL NETWORK

Barix is represented worldwide by a network of partners.

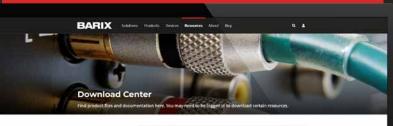
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- ✓ Manuals, Firmware updates and more available
- ✓ Detailed information to every product
- ✓ Use Cases and datasheets to download





## WWW.BARIX.COM

## BARIX

#### **Barix AG**

- www.barix.com
- info@barix.com
- **/** +41 43 433 22 11

