

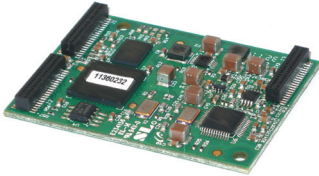
# BARIX

THE VOICE OF SIMPLICITY

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## IP AUDIO MODULE 102

full I/O and codec/DSP capabilities, two serial ports, versatile digital I/O, Encoding/Decoding, 5V supply



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The Barix IP AUDIO MODULE 102 is a versatile network audio module that encodes and decodes PCM, G.711, G.722, Ogg Vorbis and MPEG audio. The IPAM 101 model is intended for OEM applications where G.722 and MP3 encoding is not required. Both models enable manufacturers of traditional audio devices to add network capabilities to their products.

Each module is a complete system consisting of CPU, DSP, memory and interface circuitry, providing network and high speed serial interfaces, general purpose I/Os, analog and digital audio interfaces.

For OEM hardware integration a development specification with schematic, pin-out and layout guidelines is available. An IPAM Evaluation Kit, containing a carrier PCB and the IP audio module 102, is available.

### Applications

- Commercial Audio Streaming Applications
- Digital Annunciator, Message Player, Message Repeater
- Generic, bidirectional full-duplex VoIP module for Paging and Intercom applications
- Source Encoder for IP Audio Distribution Applications
- Background Music and Music-on-Hold encoder for VoIP Applications
- Low latency IP Audio Encoder for multichannel applications

Various software packages for standard applications are available for download from the Barix website, optimized for encoding, audio distribution, paging and intercom, including a full featured SIP client.

Custom software can easily be written, based on existing packages from Barix written in the ABCL language.

For low cost applications the Barix IP AUDIO MODULE 300 with reduced set of interfaces and audio decoding capabilities is available.

### Features

- MP3, G711, G.722, PCM Encoding
  - AACplus, MP3, Ogg Vorbis, G.711, G.722, PCM lineare Decoding
  - Shoutcast/Icecast Source capability
  - Audio Level Supervision with SNMP Trap generation
  - IP Streaming via TCP, UDP, RTP, Multicast
  - Microphone Input
  - Line Level Input (Stereo)
  - Line Level Output (Stereo)
  - General Purpose I/O (8)
  - RS-232 Serial Port (TTL Level)
  - RS-485 Serial Port (TTL Level)
  - Supply Voltage (5V)
  - USB Flash Memory Interface
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# Technical Specifications

## Electrical

- 5 VDC (-20% / +10%), 1.6 Watt max.
- 3 x 40 pin, high density, 0.8 mm spacing, SMT connectors

## Ethernet

- Two 10/100 Mbps (auto) Ethernet: primary with built-in PHY,
- secondary intended for redundancy use (MII only, requiring
- external PHY), outputs for dual color Link/Activity LEDs

## Audio Interfaces

- Mic input 111 mVPP max (with Bias power),
- Stereo input 2.2 VPP max, both adjustable in sensitivity
- Frequency response 20 Hz ..20 kHz (-3 dB)\*
- Dynamic range 87 dB, SNR -87 dB, THD <0.01% (-3dBFS)\*
- Stereo output 3 VPP max, volume, bass and treble adjustable
- Frequency response 20 Hz ..20 kHz (-3dB)\*
- Dynamic range 94 dB, SNR -94 dB, THD <0.03% (-3 dBFS)\*
- I<sup>2</sup>S output (Inter-IC Sound)

## Audio formats (encode & decode)

- PCM
- G.711
- G.722
- OggVorbis
- AAC+ (decode only)
- MP3

Note:

- AAC+ requires separate licensing by OEM
- MP3, encoding/decoding up to 192/320 kbps
- PCM 16 bit and 8 bit (uLaw, aLaw) @ 8..48 kHz

## Misc. Interfaces

- Dual TTL Level UART 300..230'400 Baud asynchronous
- Outputs for 2 dual color Ethernet status LEDs, 8 General Purpose I/Os, 1 input for reset button, 1-wire bus,
- 2 status LED outputs, USB1.1 interface for memory

## CPU / Memory

- Integrated CPU / MAC / IO controller with on-chip 256 KB
- RAM, 2 KB EEPROM for configuration, 2 MB Flash memory
- for system, application, data and web server content

## Operating System

- Embedded, robust OS, IP stack with support for TCP/IP, UDP, RTP, SIP, DHCP, Multicast/IGMP

## User / Application Interfaces

- Integrated web server (control/configuration),
- browser based, serial or Ethernet control interface,
- programmable software environment

## Mechanical

- Weight 14g, 2 mounting holes 2.7mm (for 2.5mm screws)

## Dimensions (W x D x H)

- 53 x 39 x 8 mm (2.1 x 1.5 x 0.31 inch)

## MTBF

- Calculation acc. MIL217F at 40°C)
- IPAM 102 min. 1 100 000h

\* depends on used codec, best results @ 48 kHz PCM

\*\* 0 - 70% relative humidity, non-condensing

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## Environmental

### Operating Environment

-20 to 60°C / -4 to 140°F

### Storage Conditions

-40 to 85°C / -40 to 185°F

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## Certifications/compliant with

RoHS compliant (lead free)

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## Ordering Information

2011.0078 IPAM 102

Sold in quantities of 10, 200 and 1000.

2011.9114 IPAM 102 Evaluation Kit

IPAM 102 based Barix products

Exstreamer 500, Annunicom 100, 200, 1000

For commercial related questions (distributors contacts, price list, business opportunities) please contact **sales@barix.com**

For technical inquiries (problem reports, request for documentation, etc) please contact **support@barix.com**

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