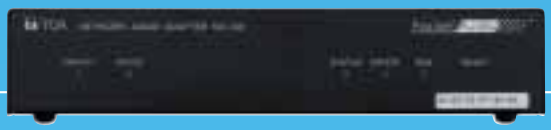
TOA

Network Audio Adapter

NX-100

Packet Audio

- Realtime transmission of high quality audio via IP networks
- Uses dedicated lines and internet for transmission to remote areas
- Reduces communications cost by allowing the internet to be used



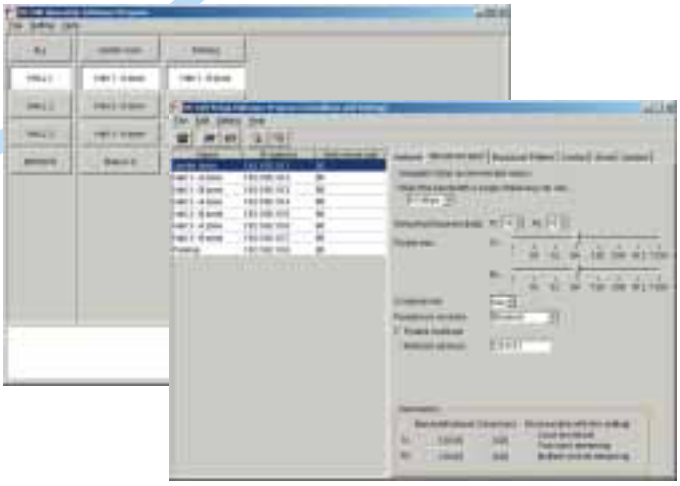
safe&sound

TOA

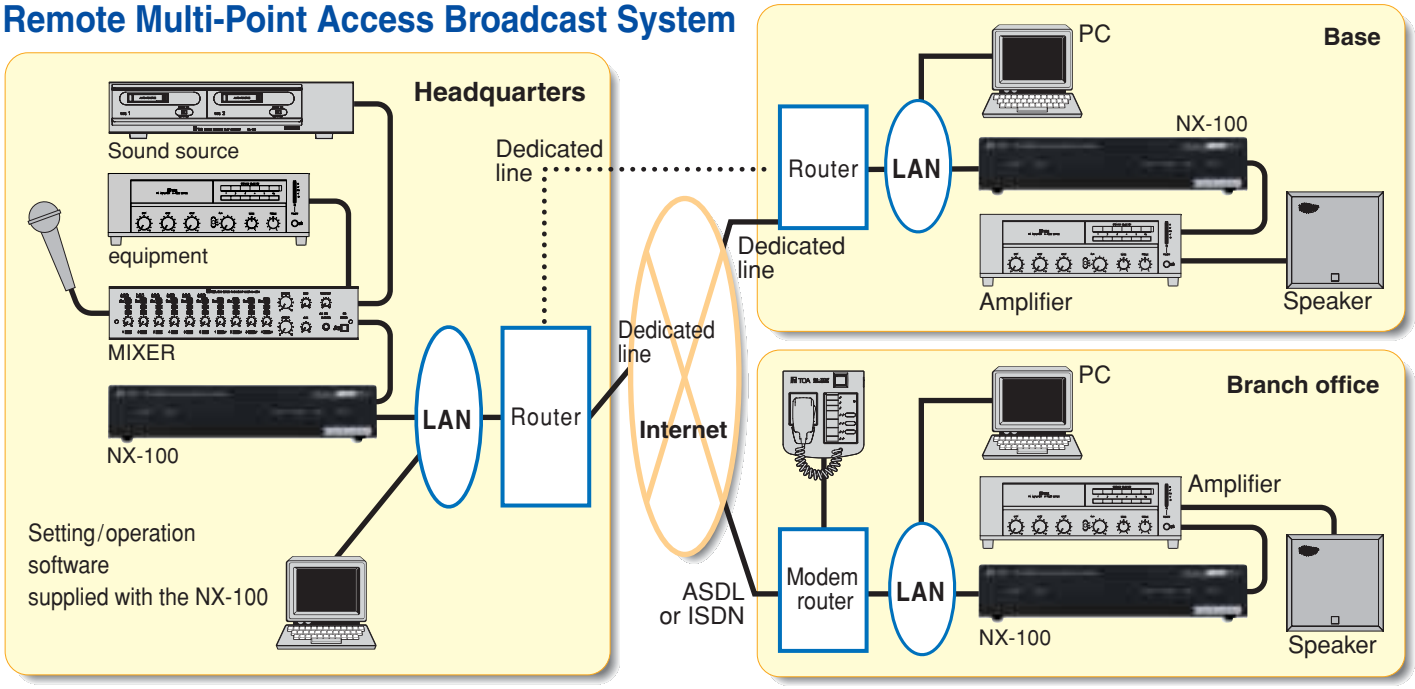
Enjoy the advantages of using IP networks

The NX-100 Network Audio Adapter satisfies the requirements for transmitting high quality audio signals and control signal as serial data over networks using the IP protocol in real time. These include the internet and LANs and allow significant cost reductions when transmitting audio signals to various remote areas as costly dedicated lines do not have to be used.

- If there is no network delay, audio signals have only a **minimal millisecond delay**.
- Control data including **contact and serial data can also be transmitted** along with the audio signals.
- **Two-way audio signal transmission** is possible with a single NX-100 unit as every unit is equipped with an audio input and output.
- **The multicast-capable NX-100 allows simultaneous transmission of audio signals** to be made to multiple locations depending on transmission method:
  Unicast — up to 4 locations,
  Multicast — up to 64 ocations.
- **No audio signal degradation or loss**, even when transmitting over crowded networks such as the internet.
- **Greater data reliability using IP networks** with the protocol's ability to prevent data problems during transmission.
- The NX-100's contact input can **initiate and terminate audio transmissions** without having to use dedicated control equipment such as a PC.
- **Hardware use** ensures operational reliability over only software-driven applications.
- Using IP to transmit audio signals over the internet **allows low cost** operation rather than dedicated lines.
- The NX-100 is equipped with a DC input to allow **operation on AC as well as DC**.
- **Software-driven operational menus** enhance ease of use.



Remote Multi-Point Access Broadcast System



to transmit high quality audio in realtime.

System application examples

The NX-100 is a flexible product that proves ideal for many applications where a remote multi-point broadcast system is required.

a) Voice distribution to remote broadcast areas such as roadside locations, railway stations and the like.

example

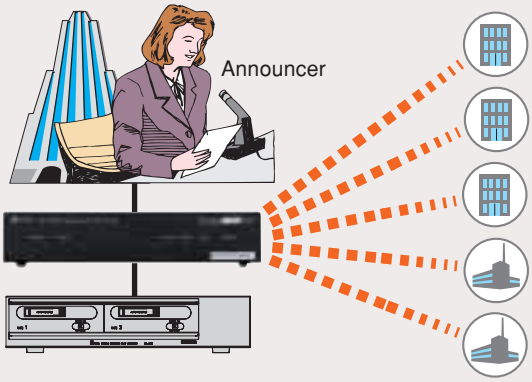
Automated announcements at unattended stations.

Digital Announcer

b) General purpose broadcasts in supermarket chain stores, department stores and various locations in manufacturing plants.

example

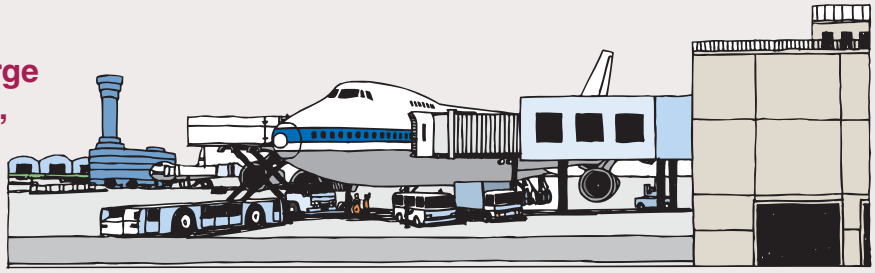
Headquarters transmissions to designated locations.



Announcer

CD player, BGM and prerecorded voice announcements.

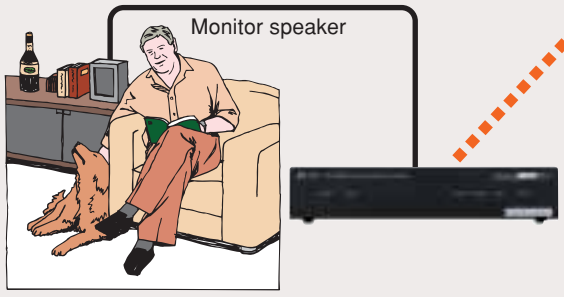
c) Voice announcements and other sound distribution for large environments such as airports, stadiums and the like.



d) High quality audio monitoring.

example

Audio monitoring for remote location security.



Monitor speaker

(announcements also possible)

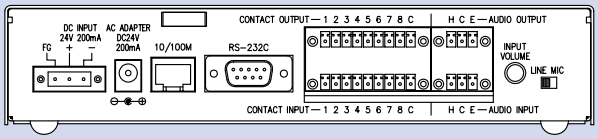
On-site Microphone

Other useful applications include: Monitoring of broadcast equipment in remote locations. Audio monitoring of factory machine operation noise levels as well as ambient noise levels in remote automated factory locations.

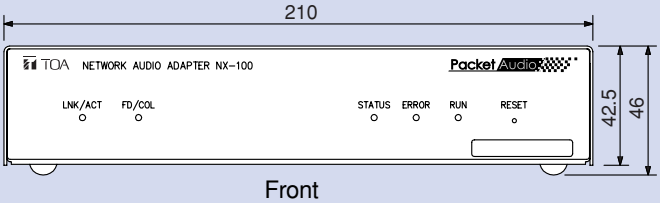
●FRONT

●REAR

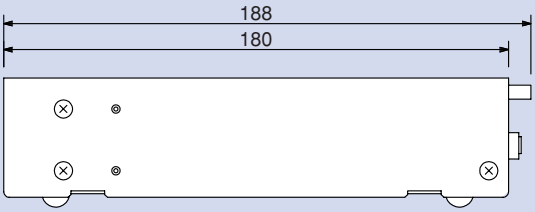
APPEARANCE AND DIMENSIONAL DIAGRAM



Rear



Front



Side

SPECIFICATIONS

* 0dB = 1V

Power Source	24V DC (plug-in screw connector) or AC adapter AD-246 (optional) or the equivalent
Current Consumption	200mA (DC operation)
Audio Input	1 channel (isolated transformer), –58dB* to 0dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, plug-in connector
Audio Output	1 channel (isolated transformer), balanced, 600Ω, plug-in screw connector
Frequency Response	50 – 14,000Hz (when sampling frequency is 32kHz)
Distortion	Under 0.3% (1kHz, when sampling frequency 32kHz)
Control Input	8 channels, no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA, plug-in screw connector
Control Output	8 channels, open collector output, withstand voltage: 30V DC, control current: 50mA max., plug-in screw connector
Network I/F	10BASE-T/100BASE-TX, Auto-Negotiation
Network Protocol	TCP/IP, UDP, HTTP, RTP
Audio packet Transmission System	Unicast (up to 4 simultaneous transmissions), Multicast (up to 64 simultaneous transmissions)
Operating Temperature	0°C to +50°C (0°C to +40°C when AC adapter is in use)
Operating Humidity	Under 90% RH (no dew condensation should be produced)
Finish	Steel plate, black, 30% gloss
Dimensions	210 (W) × 46 (H) × 188 (D) mm
Weight	1.2kg
Accessory	Bracket mounting screw × 8, CD (PC setting/operation software programe) × 1, Power supply screw connector plug × 1, Audio I/O screw connector plug × 2, Control I/O screw connector plug × 2, RS-232C connector cover × 1
Optional Components	Rack mounting bracket: MB-15B-BK (for one NX-100 unit) MB-15B-J (for two NX-100 units) AC adapter: AD-246

Note: When you need the AC adapter, be sure to consult your TOA dealer.

Guidelines on Line Band, Sound Quality and Delay Time

(1) For LAN and dedicated lines

Line Band	Voice Compression	Audio Band	Sampling	Voice Packet Loss Recovery	Delay Time (sec)	Band Used (kbps)
Over 1.5 Mbps	No	50-14kHz	32kHz	Silence	0.02	776
				Redundancy	0.5	1188
	Yes	50-14kHz	32kHz	Silence	0.02	392
				Redundancy	0.5	612
128 kbps (Dedicated line, etc.)	Yes	50-7kHz	16kHz	Silence	1.3	68
				Redundancy	7	103
64 kbps (ISDN, etc.)	Yes	50-3.4kHz	8kHz	Silence	2.6	34
				Redundancy	14	51

(2) For the Internet

Line Band	Voice Compression	Audio Band	Sampling	Voice Packet Loss Recovery	Delay Time (sec)	Band Used (kbps)
Over 512 kbps (ADSL,etc.)	Yes	50-14kHz	32kHz	Silence	0.6	136
				Retransmission	20	369
128 kbps (Dedicated line, etc.)	Yes	50-7kHz	16kHz	Silence	1.3	68
		50-3.4kHz	8kHz	Retransmission	20	103
64 kbps (ISDN, etc.)	Yes	50-3.4kHz	8kHz	Silence	2.6	34
				Redundancy	14	51

NOTES:

1. The following conditions apply to the side delay time values and required band:

(1) Line band: 1.5 Mbps; Voice compression not used— Voice packet size: 128 bytes

(2) Line band: 1.5 Mbps; Voice compression used— Voice packet size: 32 bytes

(3) A voice packet size of 1,024 bytes assumed for all but the 1.5 Mbps Line band.

2. "Voice Packet Loss Recovery" is a processing function when the voice packet cannot be received owing to communications interference.

(1) Silence: Sections without voice packets are processed as silence.

(2) Redundancy: Enables the voice to be normally output for continuous losses of up to 8 packets.

(3) Retransmission: Enables the voice to be normally output for continuous losses of up to 15 seconds.

3. "Required band" represents the bands required for voice transmission.

When sending other data (such as serial data), the transmission band is separately required.

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Specifications are subject to change without notice.
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