TOA

NX-100/NX-100S NETWORK AUDIO ADAPTER



- ***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***

Packet Audio

Facilitating real time audio tr

The top-rated NX-100 and affordable NX-100S Network Audio Adapters share many common features and functions related to transmitting high quality audio signals over IP networks such as LANs and the internet in real time.





Real time transmission of high quality audio signals over IP networks.

Audio can simply be transmitted as IP packets via a router or an intelligent switch. Without any network delay, the audio broadcasts will only experience delay times as minimal as tens of milliseconds.

Audio signal quality maintains high fidelity over a wide frequency range from 50 Hz up to 14 kHz

The NX-100/NX-100S incorporates efficient “sub-band ADPCM” audio compression technology that preserves delicate musical instrument nuances and allows the emotional content of a person's speech to be transmitted as well. Malfunctions and emergency signals and other sounds can also be accurately monitored and evaluated thanks to the high level of fidelity. If a higher level of audio performance is required, the NX-100 will also uncompress (PCM) audio transmission. Sampling frequency transmission rates can be selected at 8kHz, 16kHz, or 32kHz to best suit the transmission frequency range.

Multi transmission modes available — LANs and dedicated lines as well as transmitting audio over the internet.

The NX-100/NX-100S supports NAT and IP Masquerade (IPMASQ or MASQ) networking which present technological difficulties to conventional VoIP (Voice over IP) technology and protocols such as H.323 and SIP. These advanced abilities of the NX-100/NX-100S result in dramatic cost savings for both installation and operational costs.

Note: Connected to the internet, the private IP address is converted into a global IP address by the router. NAT and IP Masquerade perform this address conversion.

Equipped with the Voice Packet Loss Recovery and sampling frequency adjustment functions

The NX-100/NX100S employs three modes that are employed to recover lost packets. Both also adjust sampling frequencies at the sending and receiving ends so that uninterrupted continuous broadcasting may be possible for long hours even if communication interference should occur on the network.

Simultaneous multi-location broadcasting and two-way communication capabilities widen scope of applications.

A single NX-100/NX-100S unit can simultaneously transmit audio signals to a maximum of 4 locations in the Unicast mode and to up to 64 locations in the Multicast mode. This makes it possible to effectively perform company-wide broadcasting and also to integrate broadcast diffusion functions.
Every NX-100/NX-100S is equipped with independent audio input and output connectors that can be operating simultaneously, allowing use as a broadcast monitor or as a communication device responding to the location receiving the broadcast.

8 channels of contact inputs/outputs are provided. The RS-232C port on the NX-100 can be used to send serial data to and from remote areas.

Control input signals as well as audio signals can easily be transmitted to remote locations. The signals can be employed for power on/off control of the PA amplifier which receives the voice output. In addition, other useful tasks include broadcasting start using the sensor or timer, activating an external music source and selecting the broadcasting area for each of the input terminals.

Software-driven operation or through input terminals.

Multiple NX-100/NX-100S units can be operated via an IP network employing the supplied operation software and broadcasting can also be initiated and terminated using the input terminals for the maximum operational reliability of a hardware solution. A full system can be assembled without including a single PC.

Simplified setup and maintenance using supplied setup software or web browser.

Supplied setup software makes it easy to perform routine tasks such as changing settings, checking operational status, and updating firmware for all NX-100/NX-100S units on a network. The NX-100/X-100S is an exceptionally low maintenance product, even allowing any PC without setup software installed to complete tasks via web browser for individual NX-100/NX-100S units.

NX-100S dedicated features.

The NX-100S is equipped with an indicator for audio input signal as well as a peak overload indicator, allowing at-a-glance visual confirmation of status. In addition, the NX-100S also provides phantom power on the audio inputs.

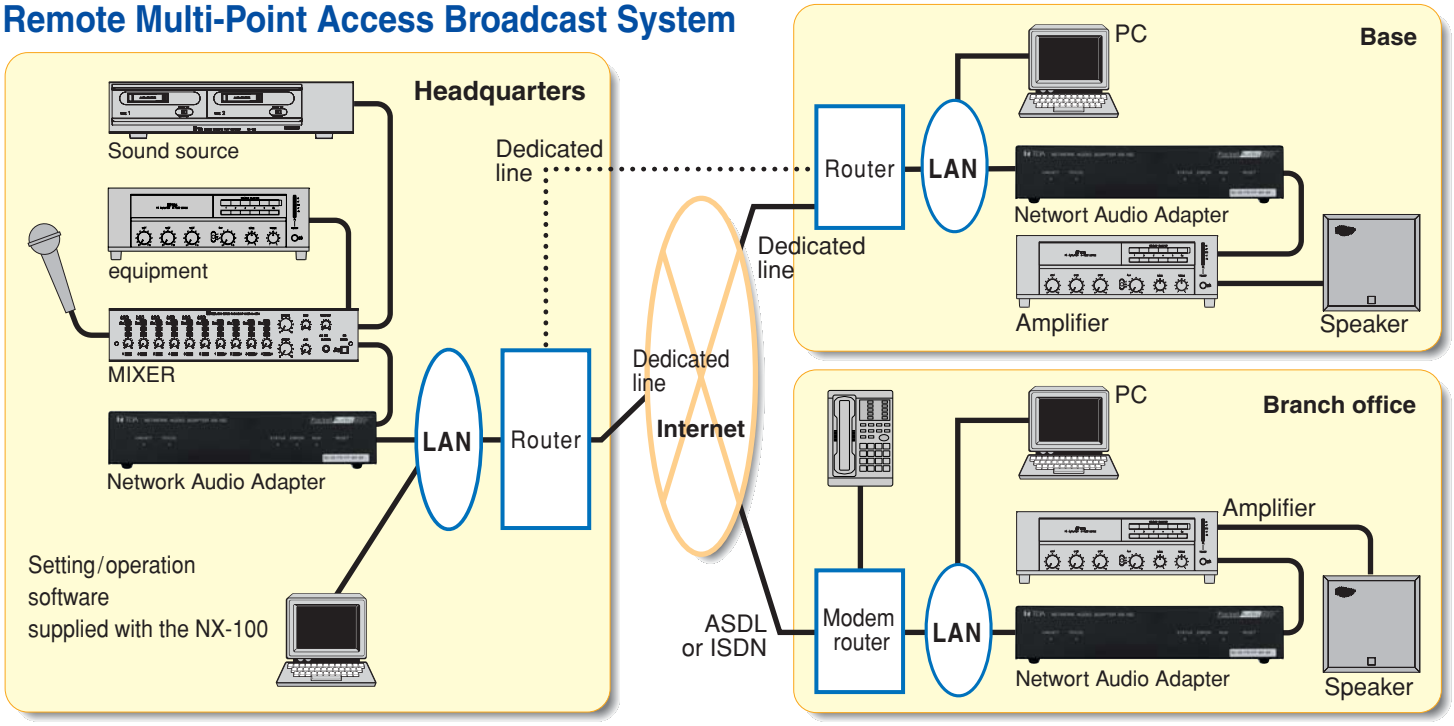
Differences between the NX-100 and the NX-100S

	NX-100	NX-100S
Power source Input	AC adapter or 24V DC	AC adapter only
RS-232C port	Yes	No
Input signal LED	No	Yes
Input peak level LED	No	Yes
Phantom power supply	No	Yes
IPv6-compatible	Yes	No

The NX-100 is the first audio equipment to sport the IPv6 Ready logo. Dedicated firmware update must be installed on the NX-100 to make it fully IPv6-compatible.

ansmission over IP networks.

Remote Multi-Point Access Broadcast System



System application examples

The Network Audio Adapter 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

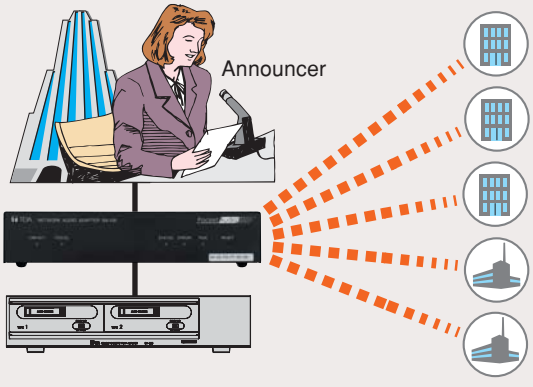
Automated announcements at unattended stations.



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

example

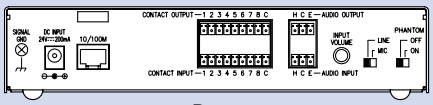
Headquarters transmissions to designated locations.



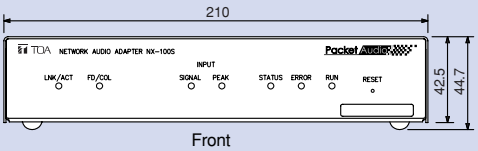


APPEARANCE AND DIMENSIONAL DIAGRAM

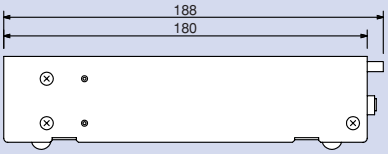
●NX-100S



Rear

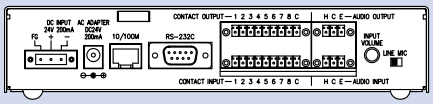


Front

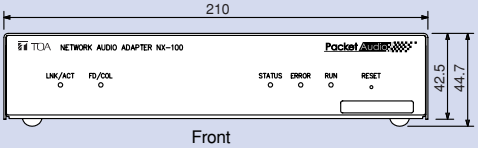


Side

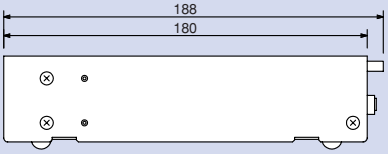
●NX-100



Rear



Front



Side

SPECIFICATIONS

* 0dB = 1V

Model No.	NX-100S	NX-100
Power Source	AC adapter AD-246 (optional) or the equivalent	24V DC (removable terminal block (3 pins)) or AC adapter AD-246 (optional) or the equivalent
Current Consumption	7W (when AD-246 (optional) is used)	200mA (DC operation)
Audio Input	1 channel (transformer-isolated), –58dB* to 0dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, removable terminal block (3 pins) phantom power supply (24V, can be set with the switch)	1 channel (transformer-isolated), –58dB* to 0dB*, balanced (MIC/LINE changeable, volume adjustable with volume control), 2kΩ, removable terminal block (3 pins)
Audio Output	1 channel (transformer-isolated), balanced, 600Ω, removable terminal block (3 pins)	
Frequency Response	50 – 14,000Hz (when sampling frequency is 32kHz)	
Distortion	Under 0.3% (1kHz, when sampling frequency is 32kHz)	
Control Input	8 channels, no-voltage make contact input, open voltage: 12V DC, short-circuit current: 10mA, removable terminal block (9 pins)	
Control Output	8 channels, open collector output (polarised), withstand voltage: 30V DC, control current: 50mA max., removable terminal block (9 pins)	
Network I/F	10BASE-T/100BASE-TX, Auto-Negotiation	
Network Protocol	TCP, UDP, ARP, ICMP, HTTP, RTP, IGMP	
Audio packet Transmission System	Unicast (up to 4 simultaneous transmissions), Multicast (up to 64 simultaneous transmissions)	
Operating Temperature	0°C to +40°C	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) × 44.7 (H) × 188 (D)mm	
Weight	1.2kg	
Accessory	CD (PC Installation & Operation software programs, Instruction manuals) × 1, Audio I/O removable terminal plug (3 pins) × 2, Ferrite clamp × 1, Control I/O removable terminal plug (9 pins) × 2, Bracket mounting screw × 8	CD (PC Installation & Operation software programs, Instruction manuals) × 1, Power supply removable terminal plug (3 pins) × 1, Audio I/O removable terminal plug (3 pins) × 2, Control I/O removable terminal plug (9 pins) × 2, RS-232C connector cover × 1, Bracket mounting screw × 8
Option	Rack mounting bracket: MB-15B-BK (for one NX-100/NX-100S unit) MB-15B-J (for two NX-100/NX-100S 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	PCM	50-14kHz	32 kHz	Silence	0.02	776
				Redundancy	0.93	820
	Sub-Band ADPCM	50-14kHz	32 kHz	Silence	0.02	392
				Redundancy	0.93	245
128 kbps (Dedicated line, etc.)	Sub-Band ADPCM	50-7kHz	16 kHz	Silence	1.3	68
				Redundancy	7.4	102
64 kbps (ISDN, etc.)	Sub-Band ADPCM	50-3.4kHz	8 kHz	Silence	2.6	34
				Redundancy	15	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.)	Sub-Band ADPCM	50-14kHz	32kHz	Silence	0.6	136
				Retransmission	30	369
128 kbps (Dedicated line, etc.)	Sub-Band ADPCM	50-7kHz	16kHz	Silence	1.3	68
		50-3.4kHz	8kHz	Retransmission	30	92
64 kbps (ISDN, etc.)	Sub-Band ADPCM	50-3.4kHz	8kHz	Silence	2.6	34
				Redundancy	15	51

NOTES:

Note 1: Voice packet size

Voice packet size other than for "Line band of 1.5 Mbps or higher" is for data of 1024 bytes.

Voice packet size for "Line band of 1.5 Mbps or higher" is for data of 256 bytes (PCM)/32 bytes (Sub-Band ADPCM) data.

Note 2: Voice Packet Loss Recovery

Voice Packet Loss Recovery is a processing method when a voice packet cannot be received due to communication interference.

Silence: Method of processing lost sectors as silence.

Redundancy: Method of accurately outputting continuous losses of up to 8 packets.

Resend: Method of accurately outputting continuous losses of up to 15 seconds.

Note 3: Required band

Required band represents the frequency band required for voice transmission. When it is necessary to transmit serial data, a transmission band is separately required.

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TOA Corporation

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Specifications are subject to change without notice.

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