

CrossNET Compact IP intercom system



CrossNET is a compact intercom matrix, built into a 1U-height 19" enclosure, featuring basic IP connectivity based on Dante™ technology, that is compatible with the recent AES-67 standard, allowing for the transportation of broadcast quality audio.

It incorporates high-quality analog balanced inputs and outputs and supports former Kroma IP panels and interfaces with reduced bandwidth compressed audio. It also supports Kroma panels with digital audio link.

The proper matrix features a 4-key intercom user interface on its front panel.

Integration of different audio signal types

Maximum switching matrix capacity is 168 ports or 4-wire circuits. The different available interfaces provide very high flexibility when handling different audio formats:

- Redundant IP Dante™ interface: Up to 128 IP ports transporting high quality audio, such as:
 - 8000-series KROMA IP intercom panels.
 - Audio ports of any type received from other equipment supporting Dante™ interface, such as AEQ digital consoles, AEQ Netbox interfaces, AEQ BC 2000D audio matrixes, Kroma Conexia intercom matrixes, AEQ Olympia commentary systems, and many other third-party Dante™ and AES 67 compatible devices available from more than 200 different manufacturers.
- 8 digital intercom ports, compatible with Kroma digital systems, that allow for connection of the following devices:
 - Legacy 8000-series Kroma panels.
 - Kroma interface cards that permit integration with other external audio sources such as phone or ISDN lines, etc.



- 12 high-quality analog balanced ports, valid for:
 - General purpose inputs and outputs to connect to broadcast consoles, commentary systems, PA inputs/outputs, etc.
 - Analog intercom panels
- 20 IP ports on redundant interfaces containing low-bitrate compressed audio, compatible with legacy Kroma systems such as:
 - KROMA Panels prior to the 8000-series connected through LAN
 - WAN-connected remote Panels
 - Wireless Belt-packs and WiFi-connected virtual panels.
 - EasyNET party-line systems... and more.
- A local intercom port including speaker and headset connector on the front panel of the device.



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Scalable to each need

The CrossNET Matrix is available in the following versions:

CrossNET 40:

8 KROMA digital Intercom ports, 12 balanced broadcast quality analog audio ports and 20 ports for compressed audio over IP.

CrossNET 72:

32 Ports with Dante™ AoIP Interface, 8 KROMA digital Intercom ports, 12 balanced broadcast quality analog audio ports and 20 ports for compressed audio over IP.

The Intercom Matrix will grow according to your need

On any of the intermediate CrossNET matrices the system capacity can be easily incremented by adding Dante™ AoIP Interface cards.

An Intercom Matrix packed with advantages

A simple integrated user panel

The front LCD screen and integrated speaker allow for monitoring of each crosspoint and device status.

Further, the matrix can be used as an integrated user panel, as it features 4 dedicated keys at the front (together with an LCD displaying 8-character labels in the screen), and that can be programmed to communicate to any user of the system, using the front panel connected headset.

IFB

The system also offers several IFB possibilities. They are matrix-implemented and configured through the Crossmapper software. Available modes range from a complete interruption to several attenuation levels for the audio signals. IFB can be used with any system-connected device, and no additional software is required to implement this functionality.

Configurable audio levels

CrossNET allows for independent control of the audio level for each input/output combination, as well as for the crosspoint level itself.

PSTN/ISDN/GSM calls

The matrix is compatible with calls and dialing in basic phone, ISDN, GSM networks (using a SIM card) or through IP audio-codecs, requiring only the addition to the system of a suitable interface.

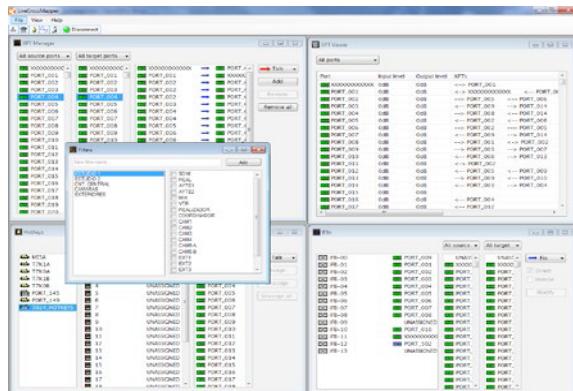
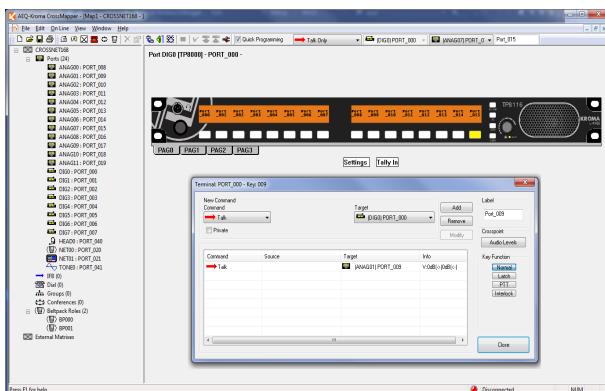
Wireless base station

CrossNET is a crosspoint matrix and also a wireless base station. Only the addition of a WiFi access point to the system is required in order to establish the wireless network and connect up to 20 KROMA virtual panels.

Easy to configure

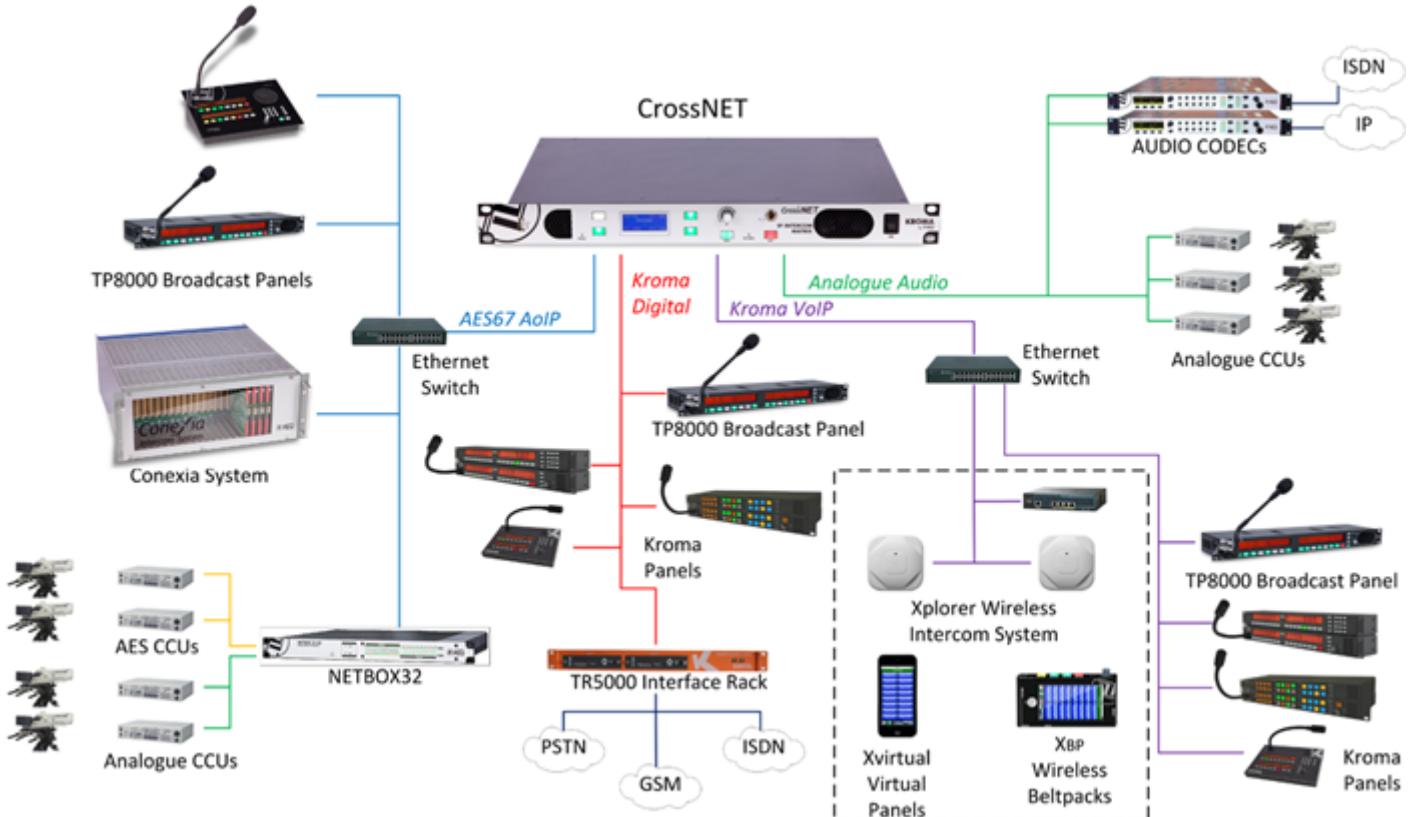
Crossmapper software for PC makes the installation of the intercom system a simple task. Crossmapper is a really user-friendly graphical interface. The generated map can be loaded to the device through the Ethernet interface or using the USB port at the front panel.

LiveCrossmapper software offers real-time monitoring and modification of the system crosspoints, IFBs and also allows for the re-programming of panel keys without altering the configuration, permitting concurrent control by up to 10 users.



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Flexibility and scalability to adapt to any requirement and situation



Example CrossNET configuration connection diagram, featuring different audio sources

This diagram shows CrossNET flexibility for the integration of different broadcast-quality sound sources and destinations, connection to other broadcast-quality intercom matrixes, to cutting-edge-technology intercom panels, conventional and wireless panels, and also to remote links through very diverse telecommunication networks.

At the left, in blue, the Dante AoIP broadcast-quality network is represented, showing connection to several AoIP / AES 67 Dante™ 8000-series panels. A complete Conexia Intercom system is connected to the same network, as well as a NETBOX 32 interface, receiving audio from analogue and AES3-digital CCUs for broadcast sound contribution.

Next, the Kroma Digital intercom network is depicted with wires represented in red, using point-to-point wiring for high-quality

audio. It includes 8000-series and older panels, using their Kroma digital port. Also, a TR5000 digital interface is connected to the digital ports, allowing for connection to ISDN, POTS and GSM circuits.

Next, at the right, with connections represented in purple, a Kroma VoIP intercom network is shown, also including 8000-series and older panels, connected using their IP ports. Also, a wireless beltpack system and a series of virtual panels are connected by means of a WiFi access point.

To finish, farthest to the right, the green lines are representing Analogue Audio ports, where analogue CCUs for broadcast audio contribution and audio-codecs for remote broadcast-quality audio connections are connected.



CrossNET rear-view

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Technical specifications

IP interface	Redundant 100Mbps/1 Gbps IP interface. • Up to 128 Dante / AES 67 channels: 24bits, 48 kHz. 20 Hz / 20 kHz. - Typical delay at 48kHz sampling frequency: 2ms. (it depends on network quality and complexity). • Up to 20 Kroma system channels: 8 bits, 8.3KHz. B=80Kbps, KROMA PRTP / UDP.
Analogue connections	12 x RJ45 ports, carrying 4-wire analogue balanced audio with broadcast quality. Nominal level: 4 dBV, output impedance: 20 Ω, input impedance: 24 kΩ. Bandwidth: 20 Hz - 20KHz
Kroma digital connections	8 x RJ45, Sampling frequency: 41,66 kHz, 16-bit audio + control. Proprietary KROMA Intercom protocol at 2Mb/s.
Sampling frequency	48KHz @ 24bits/sample.
Synchronization	Word Clock" type with "daisy chain" output in order to provide synchronization to other pieces of equipment.
Size and weight (approx.):	1RUx19"x 300 mm. 4 Kg - 1RUx19"x12". 10 lbs
Power supply	Range redundant power supply, admitting 90 to 132VAC and 187 to 264 VAC in two ranges. 50/ 60 Hz line frequency.
GPIO	8 GPI through DB15 connector, +(5-24) V input range. 8 GPO through DB15 connector, contact-closure type

Equipment compatibility

CrossNET has been designed to be used in integrated systems admitting the latest audio equipment developments from AEQ-Kroma and third party equipment. Further, several generations of KROMA intercom equipment and accessories can be integrated allowing for the gradual expansion and evolution of older existing systems in use into top-notch, high quality systems of the latest generation with broadcast quality audio.

Compatible system parts. High-quality: AoIP

8000-Series Dante user panels

TP8116 Ports: 1 redundant Dante + Kroma network port, 1 digital Kroma, 1 analog.

16 keys, 2 LCD

EP8116 Expansion 16 Keys and 2 LCD for TP8116, TP8132, TP8016 or TP8032.

TP8016 Ports: 1 redundant Dante + Kroma network port, 1 digital Kroma, 1 analog. 16 keys

TP8416 Ports: 1 redundant Dante + Kroma network port, 1 digital Kroma, 1 analog. 16 keys, 2 LCD. Desktop version

Other Dante-compatible systems CrossNET system can exchange broadcast-quality audio channels with

AEQ Netbox8: 8-channels analogue audio + 1 AES-EBU dual + 1 AES-EBU / USB dual interface.

AEQ Netbox4: 4-channels analogue audio + 1 AES-EBU dual + 1 AES-EBU / USB dual interface.

AEQ BC 2000D Router (to 5000x5000 crosspoints).

Kroma Conexia Intercom System (to 1000 ports).

AEQ Olympia Commentary System

AEQ Consolas Broadcast: ARENA, Forum, Forum IP, Capitol IP

Dante / AES 67: Other third-party devices from more than 200 different manufacturers

Compatible equipments. Voice quality: VoIP

Xplorer: Wireless Intercom Sistem

Xbp Terminal Wireless beltpack with 4 physical keys and 16 on screen

Xvirtual App License for the Virtual Panel applications available for Windows, Android .

Wired beltpacks

BP6000 Analogue wired beltpack (4-wires circuit)

BP3004 IP wired beltpack , 4 Keys

Other compatible equipment. Kroma user panels.

TP5024 Ports: 2 digital, 1 network, 1 analog; 24 keys with graphical LCD.

EP5024 Expansion 24 keys with graphical LCD for TP5024

TP5008 Ports: 2 digital, 1 network, 1 analog; 8 keys with graphical LCD

TP4016 Ports: 2 digital, 1 network, 1 analog, 16 keys, 2 LCD

TP3016 Ports: 2 digital, 1 network, 1 analog, 16 keys

EP4016 Expansion 16 keys, 2 LCD for TP4016 or TP3016

TP4216 Ports: 2 digital, 1 network, 1 analog; 16 keys, 2 LCD. Tabletop mounting

TP3216 Ports: 2 digital, 1 network, 1 analog; 16 keys. Tabletop mounting

Interfaces and linkers

Digital interface racks

TR7000R01 Interface rack for up to 6 cards. 19" 3U-height.

TR5000R01 Interface rack for up to 2 cards. 19", 1U-height.

Interface cards

TA7000X01 4-ports 4-wire audio card (transformer-isolated)

TA7003X01 4-ports 2-wire audio card (transformer-isolated)

TA7002X01 2-ports Telephone line interface card

TD7000X01 2-ports ISDN line interface cards (G711 protocol)

TD7001X01 1-port GSM interface card

IP Kroma Linkers

IL5004R02 IP Linker, featuring 4 analogue, 4 digital and 4 IP ports. 19" 1U-height

IL5008R01 Linker, featuring 4 analogue, 8 digital and 8 IP ports. 19" 1U-height

IL5016R01 IP Linker, featuring 4 analogue, 16 digital and 16 IP ports. 19" 1U-height

IP Audiocodecs and RDSI

AEQ MERCURY One channel IP

AEQ VENUS Two channel IP

AEQ STRATOS Two channel IP or RSDI



The design and specifications of the CrossNET intercom matrix and the TP8000 Panels was awarded with TV Technology's "Best of Show" at the NAB Show 2015.