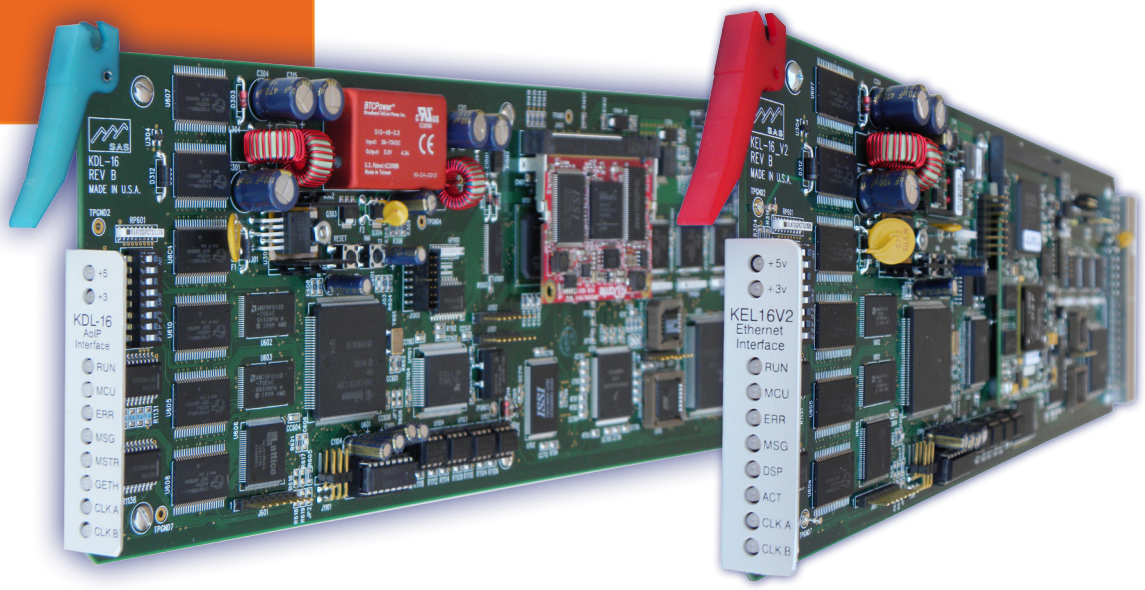
SAS KDL/KEL

Complete AoIP System

AUDIO OVER IP SYSTEM



The SAS AUDIO over IP SYSTEM:

The KEL-16 and KDL-16 are Modules that install in the SAS 32KD Digital Audio Network and Console System. The KDL-16 provides 32 channels of bi-direction Linear Audio over a standard IP LAN Network while the KEL-16 provides 32 channels of selectable Bit Rate Reduced Algorithms over standard IP LANS and WANS. The rear connector for these modules is a standard RJ-45 for direct connection to the IP LAN or WAN.

SAS KDL-16, LINEAR AUDIO over IP TRANSPORT:

The KDL-16 module provides 32 channels of full 24 Bit Linear Audio, and utilizes the very popular DANTE AoIP protocol from Audinate. Many third party equipment manufacturers use the DANTE protocol such as Focusrite, Yamaha, Mackie and more. The KDL-16 also supports the AES-67 AoIP protocol that has recently been adopted as a standard by the AES. Additionally, the KDL-16 is IEEE 802.1 (AVB) compliant which utilizes an AoE (Audio over Ethernet) technique with Bandwidth reservation protocol called SRP (or Stream Reservation Protocol). The AVB standard adopted by the IEEE is a Transport Mechanism designed specifically for Video and Audio Data over IP LAN Networks and does not rely on VoIP or other QoS parameters that are required in older "designed for Ordinary Data" Layer 3 IP switches. The KDL-16 is suitable for direct ingest of Audio from Digital Audio Workstations (DAW) over an IP LAN or WAN and comes complete with Audio Sound Card Drivers (or VSD, Virtual Sound Device Software) that supports both WDM for PC Windows and ASIO for MAC OS systems.

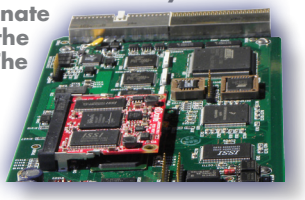
MORE FLEXIBILITY and DRIVER OPTIONS:

The SAS KDL-16 offers the largest scope of operating partners and Virtual Sound Device drivers than any other system available. The widely used DANTE protocol and the available WDM and ASIO drivers make the KDL-16 adaptable to virtually any device and DAW workstation software.

SIMPLE CONFIGURATION and PROGRAMMING:

The SAS KDL-16 features a plug and play setup, which statically maps IP sources into the SAS 32KD network. The DANTE protocol, which utilizes IEEE-1588 standard time Clock and a unique UDP header, reduces the dependency for specific VoIP QoS settings. This makes the implementation of SAS AoIP simple and reliable.

DANTE AoIP APPLIANCE INSIDE:



The SAS KDL-16 utilizes the DANTE Brooklyn Module Chip Set from Audinate that essentially plugs into the KDL-16 as an Appliance. The KDL-16 has On Board DSP to allow for mixing and level control functions for the Audio to and from the DANTE Network. All 32 Channels from the DANTE Network are distributed to the 32KD Network Infrastructure for Transport in Real Time to all Devices and SAS DSP Engines. The SAS 32KD Digital Audio Networked Console system is the only system available that provides both Real Time integrated DSP engines for Radio Console Broadcast operations and Audio over IP interface with low latency and reliability. The addition of an SAS KDL-16 to the 32KD Digital Audio Network gives the 32KD the most advanced and widest variety of transport options than any other system available today.

KDL-16 Features:

- Uses the DANTE AoIP transport Chip Set from Audinate
- Provides High Capacity Multi Channel Audio over IP
- Interfaces to any device using DANTE protocol
- AES-67 compliant, interfaces to any device that supports AES-67
- IEEE 802.1 AVB Compliant: The hardware fully supports the AVB standard for Synchronous Linear Audio over EtherNet
- Includes VSD (Virtual Sound Device) driver for both PC and Mac to replace conventional hardware Sound Cards
- Unique UDP/RTP Header reduces the need for advanced VoIP settings increasing reliability

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SIERRA AUTOMATED SYSTEMS

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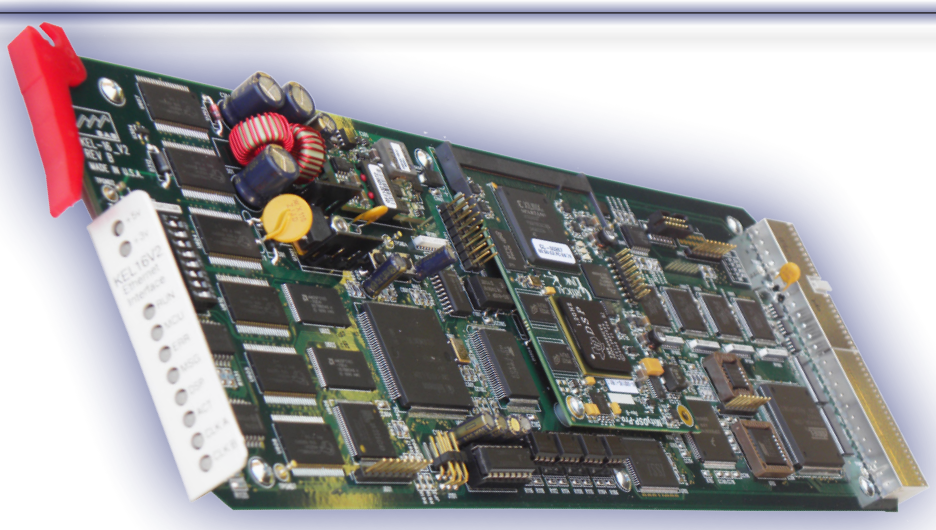
AUDIO OVER IP SYSTEM



SAS KEL-16, ENCODED AUDIO over IP TRANSPORT:

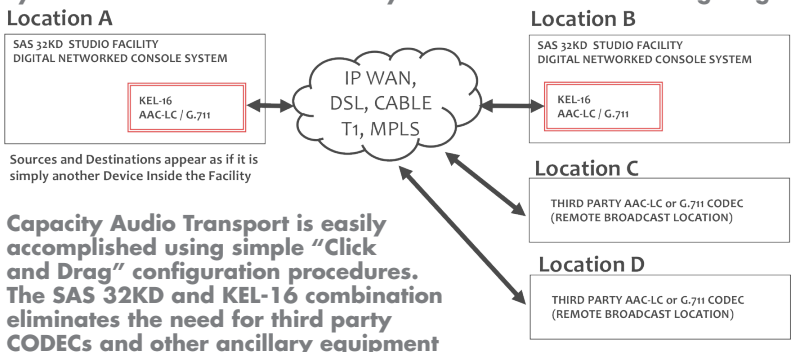
The KEL-16 is a module for the SAS 32KD and is similar to the KDL-16 where as it provides 32 Channels of Audio over IP onto a standard LAN or WAN with the main difference that the Audio is Bit Rate Reduced and buffered suitable for transport over public IP Networks. The encoding algorithms include G.711 (cross-referenced table based lookup) and AAC-LC (Psycho-acoustic Advanced Audio Coding, Low-Complexity) selectable for each of the 32 channels (or 16 Stereo Signals) on the Module. The popular AAC-LC encoding allows reduced bandwidth requirements than that of the Linear Audio Transport mechanism employed in the KDL-16 sister Module.

FACILITY to FACILITY TRANSPORT and INTERCONNECTIVITY:

The KEL-16 is suitable for the transport of multiple channels of Encoded Audio to and from any location that has IP connectivity. Using a modest 2Mbs bandwidth for all 32 channels of bi-directional Encoded Audio, the KEL-16 is a perfect solution for interconnecting SAS 32KD Digital Audio Network and Console systems between multiple facilities for Resource sharing, Remote Broadcasts, Intercom etc. The IP service required can be anywhere from DSL, Cable, or the popular growing MPLS ISP.

REDUCING the CONSTRAINTS of DISTANCE and TIME:

The SAS 32KD Digital Audio Networked Console system offers more flexibility for Audio Transport and Management than any other system available. Interconnectivity between facilities with large High

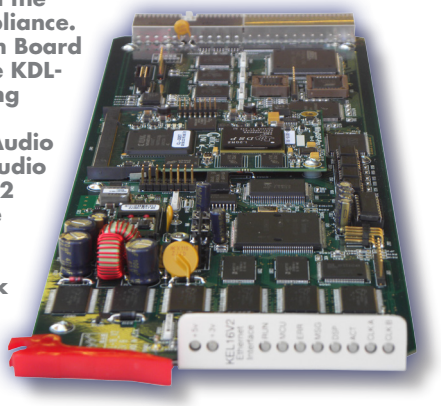


Sources and Destinations appear as if it is simply another Device Inside the Facility

Capacity Audio Transport is easily accomplished using simple "Click and Drag" configuration procedures. The SAS 32KD and KEL-16 combination eliminates the need for third party CODECs and other ancillary equipment at the Studio traditionally used for Remote Broadcasting. A single KEL-16 can connect up to 32 remote Third Party Codecs.

AAC-LC, G.711 ENCODING DSP APPLIANCE INSIDE:

Similar to the Appliance Module the KDL-16 utilizes, the KEL-16 incorporates a DSP and FPGA Module Chip Set that contains the Core AAC-LC algorithms and is installed on the Module as an Appliance. The KEL-16 has On Board DSP (similar to the KDL-16) to allow mixing and level control functions for the Audio to and from the Audio IP Network. All 32 Channels from the Audio IP Network are distributed to the 32KD Network Insfrastructure for transport in Real Time to other SAS 32KD DSP Engines on the 32KD network. The SAS 32KD Digital Audio Networked Console system is the only system available that provides both Real Time integrated DSP engines for Radio Console Broadcast operations and Audio over IP Technology.



KEL-16 Features:

- Selectable AAC-LC and G.711 CODECS per channel with 32 Channels for use as Mono or Stereo, (up to 16 Stereo)
- Provides high capacity multi channel audio over IP to any Remote Facility with IP Connectivity
- Selectively Connect to any SAS 32KD Digital Audio Network Console System or any Other Third Party CODECS
- Connect PGM Busses, Mix Minus Busses etc, from Any Console in the SAS 32KD system to Remote Facilities, Third Party CODECS etc
- As simple as broadcasting from a Studio down the hall, realize fully integrated REMOTE BROADCASTS with INTERCOM from anywhere there is IP Connectivity

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