ESMonitor Software overview

Downloadable on www.auvitran.com web site, AuviTran's ES-Monitor is a Windows Vista/XP application which runs on a remote PC connected to the Primary Master of an EtherSound™ or the 3rd port of an ES100 network segment, through standard Ethernet connections. ESMonitor offers:

1. Automatic discovery of AVY16-ES100 cards and/or any EtherSound™ compatible device on the segment, as well as automatic hierarchical interconnection between them. It enables the use of aliases to identify the modules, network name and group management.

2. Monitoring of connection, disconnection and error status for all cards and EtherSound™ links.

3. Automatic identification of the manufacturer ID, the product ID and the Channel I/O.

4. Local Patch assignment of any YGDAI input or output to the required EtherSound™ channel.

5. Controlling the individual parameters on each unit and, in the case of the AVY16-ES100 card, the mini-YGDAI Type (8 or 16 channels); the clock emergency (On/Off); both Midi and RS232 interfaces; and displays vu-meters for the incoming and outgoing channel activity/level.

6. Remote control of a Yamaha device using the standard Yamaha StudioManager through a virtual Midi connection over the EtherSound™ network.

Technical Specifications

General	
Size	120 mm x 160 mm x 40 mm (mini-YGDAI format)
Power Consumption	<4 Watts
Power Supply	+5 V, +3.3V, GND (from mini-YGDAI slot)
Storage: Temp/Humidity (non-condensing)	-5°C to 70°C / Max 95%
Operating: Temp/Humidity (non-condensing)	5°C to 40°C / 5% to 80%
Connectors	1 mini-YGDAI mini backplane connector, 2 Neutrik® EtherCon® RJ45-XLR female connectors (EtherSound™ from/to links), 1 Sub-D9 (RS232) serial interface, 1 RJ45 thrid port.

Audio I/O	
Outputs	16 channels extracted from any of the 64 EtherSound™ downstream channels or from any of the 64 EtherSound™ upstream channels in bidirectional mode @ 44.1 kHz or 48 kHz (8 channels extracted on
Inputs	16 channels inserted from any of the 64 EtherSound™ downstream channels or from any of 64 EtherSound™ upstream channels in bidirectional mode @ 44.1 kHz or 48 kHz

Audio Specifications	
Synchroni	44.1 kHz to 48 kHz ± 5% from EtherSound (can be
Audio Format	24 bit

Synchronization	
External clock synchronisation	Automatic from EtherSound™ network at 48 kHz or 44.1 kHz or manually from mini-YGDAI standard tools configuration

Other I/O	
RS232 serial interface	9-pin D-Sub
MIDI interface	Internal port in mini-YGDAI interface

Development and Integration Environment	
OS Supported	Windows Vista and XP
ES-Monitor	ES-Monitor enables to remotely set, control and monitor an EtherSound™ network and to manage the AVY16-ES100 parameters
Development Tools	A high-level AuviTran Application Programming Interface, IP based, can be provided to the third-party developer to provide direct access to the internal parameters via a PC program, subject to certain terms and conditions

Compatibility list	16 inputs and 16 outputs	8 inputs and 8 outputs (for 8 I/O YGDAI bus compliance)
01V96	◉	
02R96	◉	
DM1000	◉	
DM2000	◉	
DME24N	◉	
DME64N	◉	
LS9-16/LS9-32	◉	
M7CL-32/M7CL-48	◉	
PM5D/PM5DHR	◉	
TXn Power Amp	◉	
DIO8 (PM1D)		◉

Part numbers

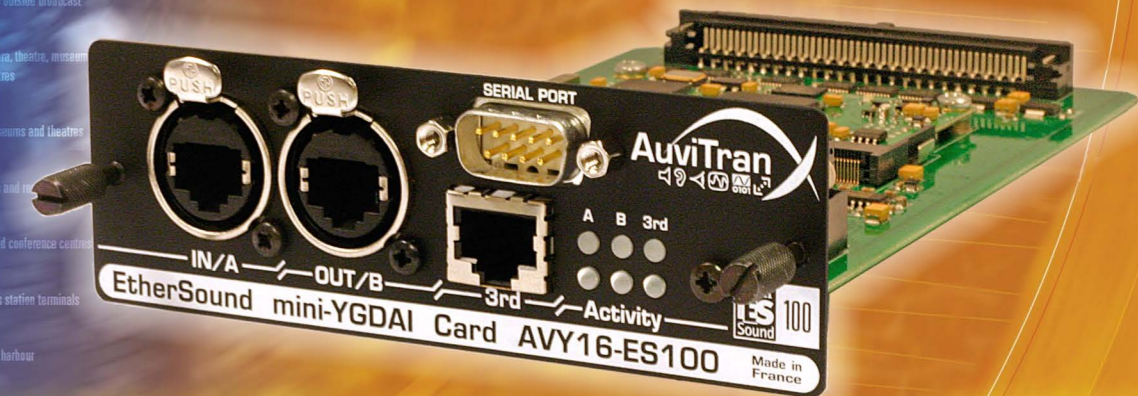AVY16-ES100 - EtherSound™ mini-YGDAI Card with 16 inputs and 16 outputs

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AVY16-ES100
Mini-YGDAI EtherSound Card

Real Time audio networking and remote control solution for ✹ YAMAHA Digital Mixing systems

AuviTran

Professional Audio Networking Solutions
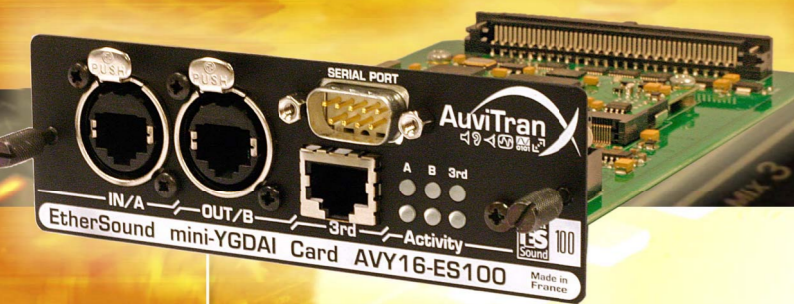
AuviTran's AVY16-ES100 card brings EtherSound™ ES100 compatibility to Yamaha digital mixers

The card provides two ES100 In/Out ports, a RS232 connector, a ES100 Third port and mini-YGDAI interface for both very-low latency audio and data transmission.

Up to 64 audio input and 64 audio output channels can be transmitted to or sent from a Yamaha mixer to any other EtherSound™ compatible device, over regular CAT5 cables.

The AVY16-ES100 card offers full network and/or local control of all channel assignments, as well as constant network status monitoring, making it ideal for live professional audio applications.

Via the RS232 port, external third-party equiment can be connected to any other third-party device using virtual tunelling or to an EtherSound™ compliant application located on a remote PC.

In addition, a MIDI connection available through the mini-YGDAI interface enables control of the Yamaha device, again via a third-party application located on a remote PC.

Applications

- Live entertainment and concerts
- Stadiums, opera, theatre, museum and arts centres
- Theme parks and resorts
- Television and radio outside broadcast
- PA announcements
- Exhibition and conference centres
- Recording and broadcast studio
- Cruise ship paging, onboard entertainment and leisure centre audio systems
- Shopping malls and arcades - zone mixing

Key Features

- 128 channels, 24 bit, 48 kHz or 44 kHz audio transmission over Ethernet.
- 16 YGDAI output channels can be dynamically "extracted" from any of the 64 EtherSound™ downstream channels or from any of the 64 upstream channels when the bidirectional mode is active.
- 16 YGDAI input channels can be dynamically "inserted" to any of the 64 EtherSound™ downstream channels or to any of the 64 upstream channels when the bidirectional mode is active.
- AuviTran's ESMonitor, a Windows Vista/XP application running on a remote PC connected to the EtherSound™ network, allows automatic discovery of AVY16-ES100 cards; monitors connection & disconnection status for all cards; controls the individual cards' parameters; and alllows local assignment of any YGDAI input or output to the required EtherSound™ channel.
- 2 x ES100 IN/OUT ports allow the daisy-chaining of multiple AVY16-ES100 cards or other third-party EtherSound™ devices.
- A Third Port allows connecting the AVY16-ES100 to a PC with a software as ESMonitor for direct control of the AVY16-ES100 and of a ES100 network when the IN port is already used (Ring or non Primary Master device)
- RS232 serial port allows 3rd-party data connection through the EtherSound™ network using virtual data tunelling or data exchange from/to a remote PC.
- Internal MIDI port located in the mini-YGDAI card enables remote control of the Yamaha device via a third-party PC application.

EtherSound™ enhances established technologies to provide easy-to-implement, high-quality audio networks. The patented EtherSound™ protocol provides fully deterministic, very low-latency (125 µs plus 1.4µs per additional network node) transmission of synchronized audio channels over standard Ethernet. EtherSound™ provides a cost effective fully digital path between a virtually infinite number of networked audio devices with up to 128 channels (64 in each direction when in bidirectional mode) of 24-bit digital audio at 48 KHz, plus bi-directional status and control data. Off-theshelf Ethernet components such as 100baseTX switch can be used to extend the number of audio devices, as well as the distance between the devices on the network. EtherSound™ is a trademark of Digigram.

Basic EtherSound™ system
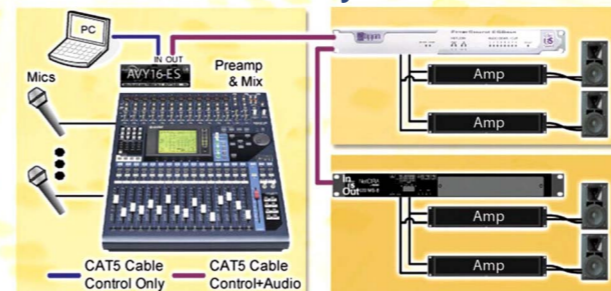
Analog audio feeds converge at the control room and are processed by the Yamaha digital mixer returned to the AVY16-ES100 card's output to be fed on to Ether-Sound™ output boxes, again linked in a then daisy chain format using simple CAT5 cables.

The EtherSound™ output devices can present in analog and digital format dependant on model employed.
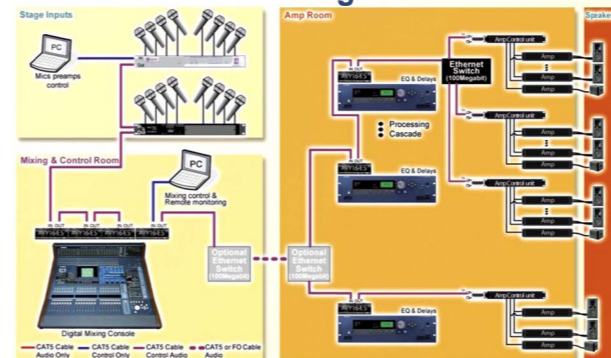
Medium-sized theatres and churches
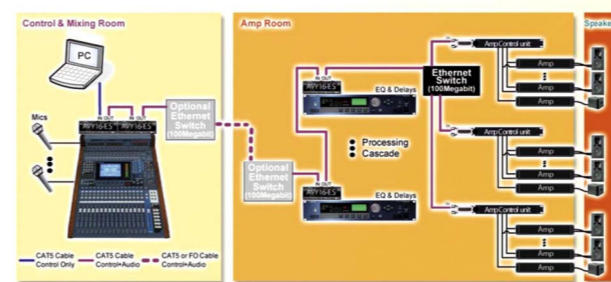
Analog audio feeds converge at the control room and are processed by the Yamaha digital mixer. Up to 32 channels of mixed audio can then be sent over EtherSound™, though the output of the second AVY16-ES100 card, via Ethernet switches if increased distance is required, to the amp room. Here, two Yamaha DME64Ns are each fitted with AVY16-ES100 cards and provide equalisation and delay processing before feeding the audio on to the speaker processor and local amplifiers – this could be analog/digital or, if the speaker processor and/or amplifiers are also EtherSound™ compliant, via an Ethernet switch, CAT5 cables and the output of the AVY16-ES100 card as shown.

The digital mixing console, remote DME64N and, if EtherSound™ compliant, speaker processors and amplifiers can be controlled and monitored using a PC in the control room as shown.

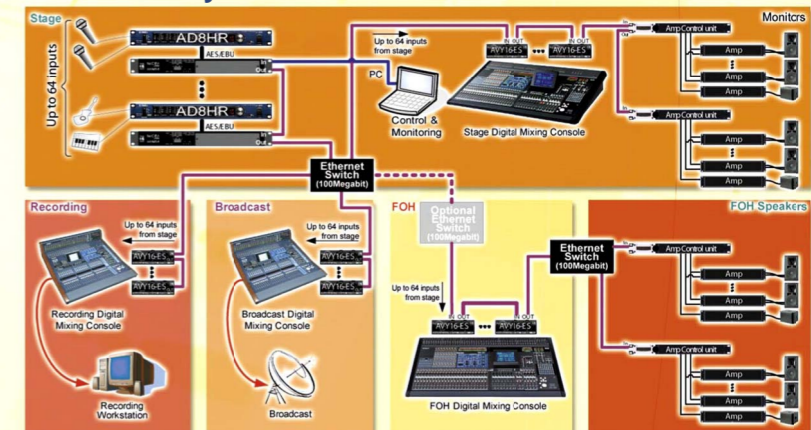## Theatres and auditoriums with distributed control and monitoring

Up to 64 analog and/or digital audio sources are fed into EtherSound™ input devices at the stage andthen transmitted over a single CAT5 cable, in EtherSound™ format, to the Yamaha digital mixer at the control room. The mixer is fitted with four AVY16-ES100 cards which receive the 64 channels, 16 per card, by daisy-chaining the CAT5 cable between each one.

Up to 64 channels of mixed audio can then be sent over EtherSound™, though the output of the final AVY16-ES100 card, via Ethernet switches if increased distance is required, to the amp room. Here, two Yamaha DME64Ns are each fitted with AVY16-ES100 cards and provide equalisation and delay processing before feeding the audio on to the speaker processor and local amplifiers – this could be analog/digital or, if the processor and/or amplifier are also EtherSound™ compliant, via an Ethernet switch, CAT5 cables and the output of the AVY16-ES100 card as shown.

The stage input units, digital mixing console, remote DME64Ns and, if EtherSound™ compliant, speaker processors and amplifiers can be controlled and monitored using a PC in the control room, while the stage inputs are managed at a PC located close by.

Live Audio system

In this instance, up to 64 analog and/or digital audio sources are fed into EtherSound™ input devices at the stage and then transmitted to multiple EtherSound™ receivers via an Ethernet switch and multiple CAT5 cables.

Yamaha digital mixing consoles located at the stage, front of house, recording room and outside broadcast location are each fitted with up to four AVY-16ES100 cards to receive the stage audio.

The FOH mixer performs mixing, equalisation and delay processing for the FOH speakers, via EtherSound™ compliant speaker processors and/or amplifiers. A similar arrangement is provided at the stage mix position, with stage monitoring being handled by EtherSound™ compliant speaker processors and/or amplifiers.

The recording and broadcast positions each provide their own processing of the audio before onward record and transmission.

A PC located at the stage mix position controls and monitors the stage inputs, digital mixers and EtherSound™ compliant speaker processors and amplifiers. Therefore, in this multiple mix position scenario, the stage has overall control of the gains for the microphone amplifiers.

Theatres and auditoriums with centralised digital mixer and remote monitoring
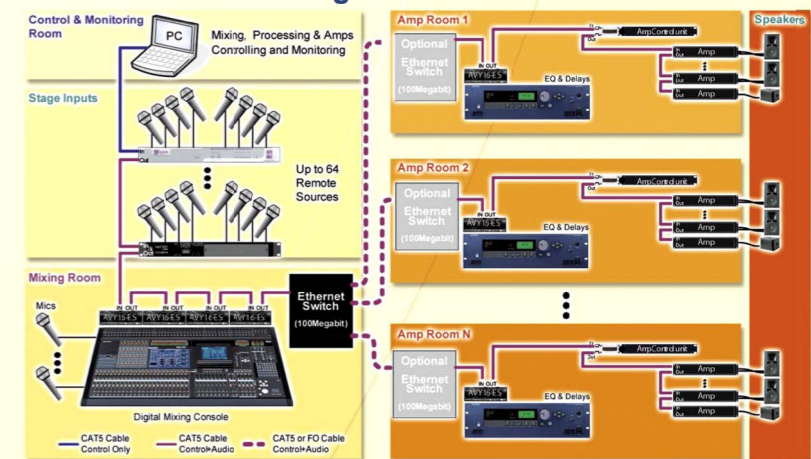
Up to 64 analog and/or digital audio sources are fed into EtherSound™ input devices at the stage and then transmitted over a single CAT5 cable, in EtherSound™ format, to the Yamaha digital mixer at the control room. The mixer is fitted with four AVY16-ES100 cards which receive the 64 channels, 16 per card, by daisy-chaining the CAT5 cable between each one.

Up to 64 channels of mixed audio can then be sent over EtherSound™, though the output of the final AVY16-ES100 card, to an Ethernet switch which then distributes the audio to individually and remotely located Yamaha DME64Ns, again each fitted with an AVY16-ES100 card.

The DME64N can provide local equalisation and delay before feeding the audio on to the speaker processor and local amplifiers – this could be analog/digital or, if the processor and/or amplifier are also EtherSound™ compliant, via CAT5 cables and the output of the AVY16-ES100 card as shown.

The stage input units, digital mixing console, remote DME64Ns and, if EtherSound™ compliant, speaker processors and amplifiers can be controlled and monitored using a PC in the control room.