Ethernet based multichannel audio system for public address, music and broadcast applications

64 channels/48kHz/24bit/1.33ms

www.itec-audio.com
Ethernet based multichannel audio system for public address, music emergency and broadcast applications

Simultaneous transmission of up to 64 digital audio channels in studio quality (48 kHz / 24 bit), with a constant latency period of 1.33 ms (digital)

Distributed audio system no „single point of failure“

Real-time configuration with ITEC.NET - NET DESIGN: Allows system configuration changes during normal operation of the system

Real-time audio transmission:
  Constant latency of 4.6 ms analog-in/analog-out

Up to 4000 devices can work simultaneously together in a network

Up to 16,000 output zones in one audio network

Can also be used with standard Ethernet network components

Integrated 2 GB memory card for alarm texts and music files
  Recording Capacity 256 files, total time about 3 hours!

Integrated real-time recorder for delayed announcements

Speaker impedance and line monitoring during program mode

ITEC.NET application interface (TCP / IP) for connecting to security management systems

It has never been so easy to plan complex audio systems

System components in certification according to EN 54-16

ITEC.NET DESIGN configuration software
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SYSTEM OVERVIEW

For configuration, monitoring, logging and recording

8x 0-10V Input

4x analog Audio in

RS232

Media Control

Dynamic or electret Microphone monitoring

Built-In Speaker

Switched Ethernet

100 MBit/s duplex CAT5/LWL wired

Can manage up to more than 4,000 nodes in one network

Fader Panels

www.itec-audio.com
ITEC® NET - SPIDER44

The combined Break-in/Break-out module in 19" design, equipped with 4 analog audio inputs and outputs, 2 network ports and 24 VDC power supply.

Other connection options: 2 serial ports (RS-232 and RS-485) for control tasks, 8 analog inputs, 8 digital inputs, 8 digital outputs, optional plug-in card for speaker monitoring (4 channels), integrated 2 GB Micro SD Card Flash memory card as a voice mail. Front-page display for the output of messages, program selection and volume. The digital encoder / push-button can also be used to operate the SPIDER44 directly when configured accordingly. Furthermore, located at the front an infrared receiving diode is in place allowing an access via IR remote control (e.g.: Program and volume).
Technical data:

General:
up to 64 digital audio channels (default)
IEEE802.3 Ethernet - based network with 100Mbit/s duplex
4 analog audio inputs and 4 analog outputs (XLR / M / F)
lowest latency times due to high-performance DSPs
Power supply: 24 VDC

Interfaces / IOs:
8 analog inputs
8 digital control inputs, 8 digital control outputs
1x RS232, 1x RS485
2x Ethernet RJ45 connector
InfraRed Remote Control

Audio Features:
16/24 or 32-bit Digital Audio
Sample rate: 48 or 96 kHz
Adjustable latency: 0.6 / 1.3 / 2.6 ms
Dynamic range: 103 dB
Total harmonic distortion (THD) <0.005 %
Frequency response: 20 Hz - 20 kHz (± 0.5 dB)
The call station, remote control and monitoring system - all in one. ITEC Spidermike2 is equipped with the same characteristics as the Spider44, however the functions are distributed in a different way. The communication terminal offers 19 soft keys (that can be labeled with insertion stripes individually), a double spaced message monitor for the display of help and error messages, a XLR connection for microphones (dynamic or electret), a built-in speaker for microphone monitoring, intercom, respectively alerting integrated 2 GByte micro SD Flash Card. Rear panel connectors: 2 x RJ45 network port, Power supply: 24 VDC. Optional Keyboard Extensions à 24 keys. Expandable to 115 keys.
Technical data:

General:
Ethernet-based network with 100 Mbit /s duplex (CAT5 cable or fiber optic)
2 analog microphones / line inputs
Integrated speaker
1 additional analog audio output
2-line text display for status and error messages
19 free configurable soft keys
2 digital outputs
6 analog measurement inputs
Integrated 2 GByte micro SD Flash Card
Power supply: 24 VDC

Audio Features:
16/24 or 32-bit Digital Audio
Sample rate: 48 or 96 kHz
Adjustable latency: 0.6 / 1.3 / 2.6 ms
Dynamic range: 103 dB
Total harmonic distortion (THD) <0.005 %
Frequency response: 20 Hz - 20 kHz (± 0.5 dB)
The fire fighters call station has within all security relevant PA applications always the highest priority. With this call station the responsible fire fighters chief is able to activate, start or interrupt on the flash card pre-stored alarm and evacuation messages across zones. When removing the microphone from its holder, text announcements are interrupted and live announcements can be spoken in by pushing a further talk button at the microphone. All functions of the call station are continuously monitored to ensure an operation at all times: For example, the function of the microphone cartridge, the contents of the memory chips and the microprocessors.

The call station is networked redundant to the ITEC NET switches, and what the 24 V DC power supply concerns connected to the ITEC NET backup power supply.

Different national and international standards are governing the functions and features of call station for fire brigades. The terminal shown here corresponds to the Austrian standard F3033 (for system designs according to TRVB S 158).

Technical data:

General:
- Ethernet-based network with 100 Mbit /s duplex (CAT5 cable or fiber optic)
- Hand held microphone
- Integrated speaker
- 1 additional analog audio output
- 6 announcement buttons
- Status indication lights
- 2 digital outputs
- 6 analog measurement inputs
- Integrated 2 GByte micro SD Flash Card
- Power supply: 24 VDC

Audio Features:
- 16/24 or 32-bit Digital Audio
- Sample rate: 48 or 96 kHz
- Adjustable latency: 0.6 / 1.3 / 2.6 ms
- Dynamic range: 103 dB
- Total harmonic distortion (THD) <0.005 %
- Frequency response: 20 Hz - 20 kHz (± 0.5 dB)
ITEC™ NET - NETWORK SWITCH

ITEC™ NET is based on the Ethernet standard IEEE 802.3, layer 2, 100 Mbit/s duplex in principle. That means for setting up a network you can use all the standard components of the computer world for networking ITEC™ NET devices without hesitation. However, the switches are system relevant components and need to be certified for the implementation in security sound systems according to EN 54-16. As leading manufacturers of network switches have no devices in their program to date, which are certified according to this particular fire alarm standard, we have developed a switch on our own and precisely tailored it to the ITEC™ NET requirements. Among others, these are facilities with fiber optic connections for long distance transmissions and single-source 24V DC power supplies (for a connection to certified power supply devices).

Technical data:

General:

Meets IEEE802.3u standard
Provides 2x 4x 10/100 Mbps Fast Ethernet ports and 1 x 100 Base-FX port
Global LED support (e.g.: power status, 100Lnk/Act, Full duplex per port)
IEEE 802.1q tag-based VLAN
VLAN ID tag / un-tag options per port
QoS priority management per port
Automatic MDI / MDI-X crossover
Stand alone (opt. managed functionality)
DC IN Power: 24 V / max. 1 A

Fiber port:

Supports multi-mode fiber and SC connectors
802.3u 100 BaseFX compliant
Fixed 100 Mbps Full duplex operation
ITEC NET DESIGN is a Windows-based application for configuring and monitoring the entire ITEC NET network. Included is a TCP/IP interface (ITEC NET API) allowing a direct link to other control systems, such as media control or security management systems. In addition NET DESIGN offers the possibility to update the DSP- and control software from any point of the network. The huge number of monitoring and logging capabilities ensures a safe operation within this large audio and data distribution system.

System Overview
In this window you will find all ITEC NET components plus the connected configuration PCs. Photos or sketches of the system floor plan can be used as background information with a free arrangement of all components. The „jump to „ function quickly finds all devices with direct access to the configuration pages.

System Tree Audio
Input Config
Each audio input has the following settings:
Mic / Line
Gain in dB steps
Compressor / Limiter
Various level controls
Network channel assignment
A particular highlight is the exceptional possibility of real-time configuration:
The technician can configure “ITEC NET Systems” in real-time during operation without the need for a system re-boot afterwards.
The software runs on Windows XP / Server 2003 / Windows 7 / Server 2008

System Tree Audio Output Config
Each audio output has the following settings:
Modes (for example: Normal Operation)
4-channel mixer (mixing up to 4 network channels on one output channel)
Output level control selection

System Tree Audio Output Priority Table
Independent of the program channels the priority channels are defined here: 16 different priority levels are adjustable
System List

Feeding Channels
Displays the current state of all audio channels in the network. Offers the possibility of recording simultaneously up to 8 network channels on a PC.

System Tree

Output EQs, Delay
For each audio output the following DSP functions are available:
- 4x fully parametric EQ and / or
- 4x high-pass filter
- 4x low-pass filter
- 4x high shelf
- 4x low shelf
- 1x delay up to 650ms
System Tree **Keypad Config Table**

Different functions can be assigned to each soft key, e.g.:
- Zone selection
- Talk key
- All Zones
- Chime
- Delete
- Alarm texts
  - + / -, up / down, etc.

System Tree **Zone Select Table**

With an entry in this table individual outputs or groups of outputs are explicitly addressed via priority announcement channels. This allows the direct access of a call station to specific output zones (The prioritization of terminals among each other had been defined in the output priority table in advance).
Full power even at 24 V DC single supply! An absolute must for system designs conforming to international standards. Power supply equipment according to EN 54-4 provides after a breakdown replacement power directly from the connected accumulator (24 V DC). Therefore power amplifiers must be capable to provide even at 24 V DC the full output power. The new ITEC DigiPower series not only meets this requirement, but offers also many other important features such as an “energy-optimized ”stand-by” mode.

2 models: 2x250 W/100 V and 4x150 W/100 V

Control LEDs for all signal and operation states
Fault signals for battery and mains
Fault signal for the power amplifier
2/4 channel in a 2 HU 19” rack
Low installation depth (only 260 mm)
All connections plug-in/screw terminals
Balanced inputs with transformer option
Automatic stand-by mode
Protection for open-circuit, shorts, over temperature, DC
230 V AC and DC 24 V power supply
Start-up delay
Maintenance-free cooling system without fans
Digital signal processing
Only 10 W power consumption in stand-by mode
Backup power supply for system designs according to EN 833-4 and TRVB S 158

The digital power supply ITEC DSV54-4 is certified according to EN 54-4:1997 + A2: 2006. It is used to supply the components of the individual modules and for charging / monitoring of the emergency batteries. The power supply is intended for a connection to a 230 V/50 Hz (±15 %) power network and has to be connected via a two-pole pre-fuse of maximum 16 A. The integrated power supply provides power up to 300 W at 24 V DC. Thus during mains operation, in addition to the load current that is needed to recharge the batteries within 24 hours on at least 80 % of its rated capacity, sufficient power for the supply of 24 V system components (Spider44, SpiderMike2, Switch4 /1) is available (e.g.: 6 A for charging batteries with 160 Ah total capacity and 6 A for other devices). Supply voltage, connected batteries and the pre-fuses of the low-voltage outlets are monitored by the ITEC DSV54-4. Errors are reported via LEDs on the front side and via potential-free relay changeover contacts. The internal resistance of the batteries is also measured cyclical. In case the resistance gets greater than 20 mΩ, it is reported at the front side via LEDs and relay contacts. The device is equipped with a deep discharge protection, which is activated when the battery voltage drops below 1.8 V/cell and which ensures a reliable protection of the batteries.
This TCP/IP based software interface for ITEC NET offers all necessary functions to operate and monitor a system. Using the free available software “ITEC tablet designer” an application has been implemented. This program allows you easily to manage complex PA systems via an amateur safe and self-explanatory graphical user interface. The user interface can be arranged freely and is highly flexible due to its modular design. Another request to the interface, that had been implemented, was the connection of “ITEC NET” to higher-level security management systems to combine all security relevant disciplines in a large building (fire alarm systems, access systems, video surveillance, etc.).
Decades of experience in the installation of professional sound systems have taught us that the impact of room acoustics on the speech intelligibility of sound events reproduced by speaker systems is more than important. All new standards in voice alarm sound reinforcement also require the compliance with respect to intelligibility values for announcements and CIS values greater than 0,7. In practice however it means, that for sound installations of halls and stands, the use of ceiling speakers, sound projectors and horn loudspeakers (even if certified) doesn't provide the desired results. Therefore we offer you for reverberant spaces strongly focusing sound columnes and for high-performance full-range applications our highpower fullrange speakers both as certified PA speakers. The most important ITEC PA speakers, which will be used within 100V full range applications as well as in voice alarm sound reinforcement systems, are currently under certification.

By the end of 2011 are the following models, certified according to EN 54-24, will become available:

The ITEC NeodymLine Series
The ITEC FocusLine Series
ITEC and Monitor12
ITEC PowerTop12 / 2