Model 5205
Mic/Line to Dante Interface

STUDIO TECHNOLOGIES INC.

Key Features

- Dante audio-over-Ethernet technology

- Two analog mic/line inputs to Dante digital audio outputs

- Selectable preamplifier gain and P48 phantom power

- Audio channel level metering

- Excellent audio quality

- AES67 and Dante Domain Manager support

- Power-over-Ethernet (PoE) powered

- Standard connectors; compact, lightweight design

Introduction

The Model 5205 Mic/Line to Dante® Interface is a general-purpose audio device that supports applications utilizing the Dante audio-over-Ethernet media networking technology. Two analog microphone or line-level audio signals can be connected to the Model 5205. They are amplified as required and then converted to digital audio channels on an associated Dante connection. With the inherent interoperability of Dante, the Model 5205 can be used with other Studio Technologies' Dante-enabled products or a multitude of devices from many other manufacturers.

Microphone or line-level balanced analog audio signals are connected using two 3-pin XLR connectors. The gain of the associated preamplifier circuitry can be selected for 0, 20, 30, 40, 50, or 60 dB. P48 phantom power is provided to support condenser microphones. LEDs display the status of the gain and phantom power functions. Multi-step LED meters provide confirmation of the level of the two Dante transmitter (output) audio channels.

The gain of the preamplifiers and on/off status of the P48 phantom power sources can be selected locally using the pushbutton switches. They can also be monitored and selected remotely using the STcontroller application.

The audio quality of the Model 5205's two audio channels is excellent, with low distortion, low noise, and high headroom. Careful circuit design and rugged components ensure long, reliable operation. A wide range of applications can be supported, including TV, radio, and streaming broadcast events, corporate and government AV installations, and post-production facilities.

The Model 5205 requires an Ethernet connection to supply both the data interface as well as Power-over-Ethernet (PoE) power. This requires an Ethernet connection from a PoE-enabled Ethernet switch. Alternately, the Model 5205 can be powered by an external midspan PoE power injector.

Applications

The Model 5205 is perfect for use in conjunction with a variety of fixed and portable audio applications where one or two analog audio signals need to join a Dante "network." The unit's high-performance audio circuitry allows virtually any source to be handled correctly. Essentially all condenser, dynamic, or ribbon microphones are compatible, as are most balanced and unbalanced analog line-level sources. The simple user controls, along with an extensive set of status indicators, help to ensure optimum performance is maintained. With the unit's compact size and PoE powering, it's simple to deploy multiple units to integrate a distributed set of sources into a Dante application. For permanent applications there's no reason why a Model 5205 can't reside within an equipment rack or be mounted,

using optional brackets, underneath a table or on-air studio set. In a conference room setting the unit can be permanently connected to a PoE-enabled Ethernet port, ready to accept a signal source from various user-provided devices.

Mic/Line Inputs

Two microphone or line-level analog audio signals can be connected to the Model 5205's 3-pin female XLR connectors. The preamplifier gain of each channel can be independently adjusted from among six settings: 0 (line), 20, 30, 40, 50, or 60 dB. To support condenser microphones P48 phantom power can be independently selected as required for each channel. LEDs are provided to display the configuration of the gain and P48 phantom power functions.

Six pushbutton switches, located on the Model 5205's front panel, allow local selection of the preamplifier gain and P48 phantom power on/off status. The STcontroller application allows personal computer users to both view and change the gain of the preamplifiers and the on/off status of the P48 phantom power sources.

Audio Quality

The Model 5205's audio performance is very good. The low-noise, wide dynamic-range preamplifier circuitry ensures that input audio quality is preserved. The outputs of the pre-amplifiers are routed to high-performance analog-to-digital conversion (ADC) sections that support sampling rate of 44.1, 48, 88.2, and 96 kHz with a bit depth of 24. A precision voltage-reference integrated circuit supports the ADC circuitry in performing accurate signal conversion. The audio signals, now in the digital domain, are connected to the Dante interface section where they are packetized and prepared for transport over Ethernet. The P48 phantom power source is extremely low noise, providing microphone power while causing little signal degradation. This is important for demanding applications.

The mic/line inputs were carefully designed for use in permanent, as well as portable and field, applications. Extensive filtering minimizes the chance that radio frequency (RF) energy will interfere with the audio input signals. Other components were included to specifically address ESD ("static") situations, helping to ensure long-term reliable operation.

Metering

Two 8-step LED meters provide a real-time level indication of the two Dante transmitter (output) channels. Scaled in dBFS (decibels referenced to full scale digital) the meters offer a direct view of the audio signal levels as they are transported via Dante in the digital domain. This is important as optimal audio performance requires transporting signals at their proper levels — without an accurate indication this can be difficult to achieve.

Ethernet Data and PoE

The Model 5205 connects to an Ethernet data network using a standard 100 Mb/s twisted-pair Ethernet interface. The physical interconnection is made by way of a Neutrik® etherCON RJ45 connector. While compatible with standard RJ45 plugs, etherCON allows a ruggedized and locking interconnection for harsh or high-reliability environments. An LED displays the status of the network connection.

The Model 5205's operating power is provided by way of the Ethernet interface using the 802.3af Power-over-Ethernet (PoE) standard. This allows fast and efficient interconnection with the associated data network. To support PoE power management, the Model 5205's PoE interface reports to the power sourcing equipment (PSE) that it's a class 2 (low power) device. An LED is provided to indicate when power is being supplied to the Model 5205.

Dante Audio-over-Ethernet

Audio data is sent from the Model 5205 using the Dante audio-over-Ethernet media networking technology. As a Dante-compliant device, the Model 5205's two transmitter (output) audio channels can be assigned to other devices using the Dante Controller software application. The bit depth is 24 and sample rates of 44.1, 48, 88.2, and 96 kHz are supported. Two bi-color LEDs provide an indication of the Dante connection status.

The Model 5205 is compliant with the AES67 interoperability standard. In addition, the unit is compatible with the Dante Domain Manager™ (DDM) software application.

Future Capabilities and Firmware Updating

The Model 5205 was designed so that its capabilities and performance can be enhanced in the future. A USB connector, located on the unit's back panel, allows the application firmware (embedded software) to be updated using a USB flash drive.

To implement the Dante interface the Model 5205 uses Audinate's UltimoX2™ integrated circuit. The firmware in this integrated circuit can be updated via the Ethernet connection, helping to ensure that its capabilities remain up to date.

Specifications

Network Audio Technology:
Type: Dante audio-over-Ethernet
AES67-2018 Support: yes, selectable on/off
Dante Domain Manager (DDM) Support: yes
Number of Dante Transmit (Output) Channels: 2
Bit Depth: 24
Sample Rates: 44.1, 48, 88.2, and 96 kHz
Number of Dante Transmitter (Output) Channels: 2
Dante Audio Flows: 2 transmitter
Analog to Digital Equivalence: a +4 dBu input with 0 dB gain selected results in a Dante digital output level of −20 dBFS

Network Interface:
Type: twisted-pair Ethernet with Power-over-Ethernet (PoE)
Data Rate: 100 Mb/s (10 Mb/s Ethernet not supported)

Power: Power-over-Ethernet (PoE) per IEEE 802.3af class 2 (low power, ≤6.49 watts)

General Audio Parameters:
Frequency Response (48 kHz Sample Rate): +0.0/−0.5 dB, 20 Hz to 22 kHz
Frequency Response (96 kHz Sample Rate): +0.0/−0.5 dB, 20 Hz to 40 kHz
Distortion (THD+N): 0.001% (−100 dB) at −1 dBFS, 40 dB gain, 22 kHz bandwidth
Dynamic Range: >114 dB, 0 dB gain, A-weighted
EIN: −123 dBu, 22 kHz bandwidth, 60 dB gain, 150 ohm source resistance
IMD (SMPTE): <0.002%, 60 Hz/7 kHz, 4:1, −20 dBFS

Mic/Line Inputs: 2
Type: electronically balanced
Input Impedance: 3.7 k ohms
CMRR: >75 dB, 20 Hz to 22 kHz, 40 dB gain
Preamplifier Gain, Nominal: 0 (line), 20, 30, 40, 50, and 60 dB
Preamplifier Gain, Actual: 0 (line), 19, 31, 40, 49, and 61 dB
Compatibility: dynamic, ribbon, or phantom-powered mics
Phantom Power: P48 per IEC 61938 standard, +45 volts DC nominal, on/off selectable

Remote Configuration Capability: preamplifier gain and P48 phantom power on/off status (uses STcontroller application)

Meters: 2
Function: displays level of Dante transmitter (output) signals
Type: 8-segment LED, modified VU ballistics

Connectors:
Mic/Line Inputs: 3-pin female XLR
Ethernet: Neutrik etherCON RJ45
USB: type A receptacle

Dimensions (Overall):
4.2 inches wide (10.7 cm)
1.7 inches high (4.3 cm)
5.1 inches deep (13.0 cm)

Mounting Option: MBK-02 Mounting Bracket Kit

Weight: 0.8 pounds (0.35 kg)

Specifications and information subject to change without notice.