MODEL 510N

DYNAMIC AUDIO NETWORK CARD

The Model 510N Dynamic Audio Network Card is one of the plug-in cards that make up the Model 500ACS System. It provides all the functions necessary to interface up to 192 IED Model 518 Digital Microphone Stations over an Ethernet network. It also provides digital audio linking between 500ACS Systems over Ethernet. Figure 1 illustrates the usage of the 510N card.

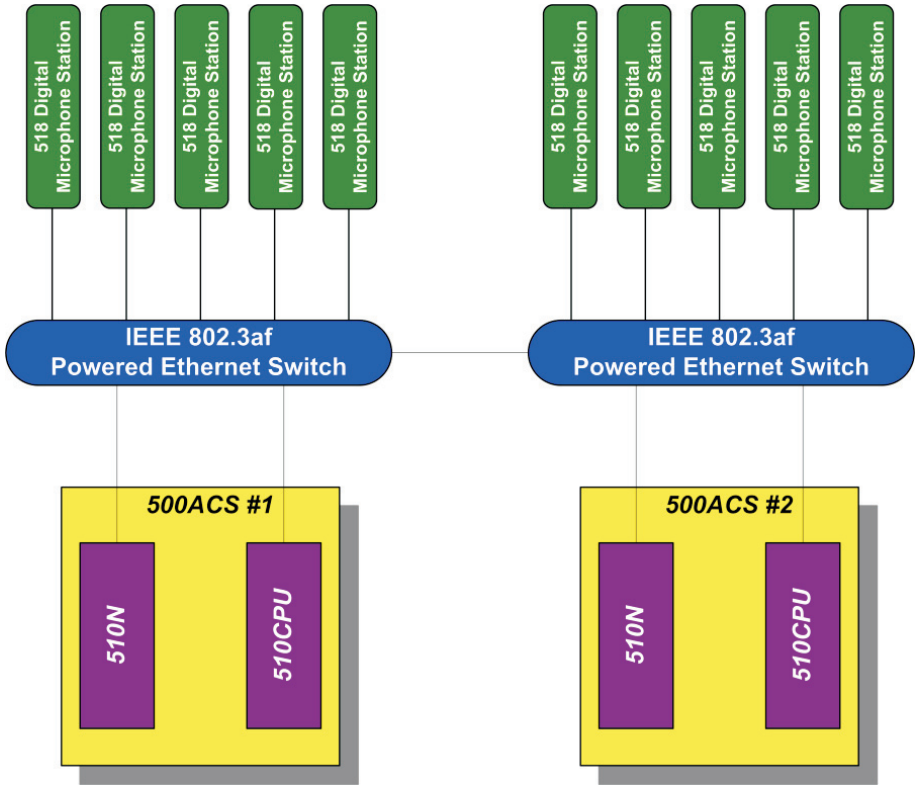

Figure 1 - ACS Network Overview

FUNCTIONAL DESCRIPTION

The 510N card sends and receives digital audio over Ethernet, utilizing technology licensed from Cirrus Logic®. When receiving digital audio from an IED Model 518 Digital Microphone Station, it routes the signal to the 500R DRP card. The 500R card then either records the audio to one of its available channels for delayed playback, or the audio is routed directly to one of the output buses to be sent to one or more 500D Zone Output Cards.

For linking between multiple 500ACS Systems, the 510N card transmits and receives digital audio data to and from the 510N card located in the remote 500ACS System. Figure 2 illustrates the functional operation of the 510N card.

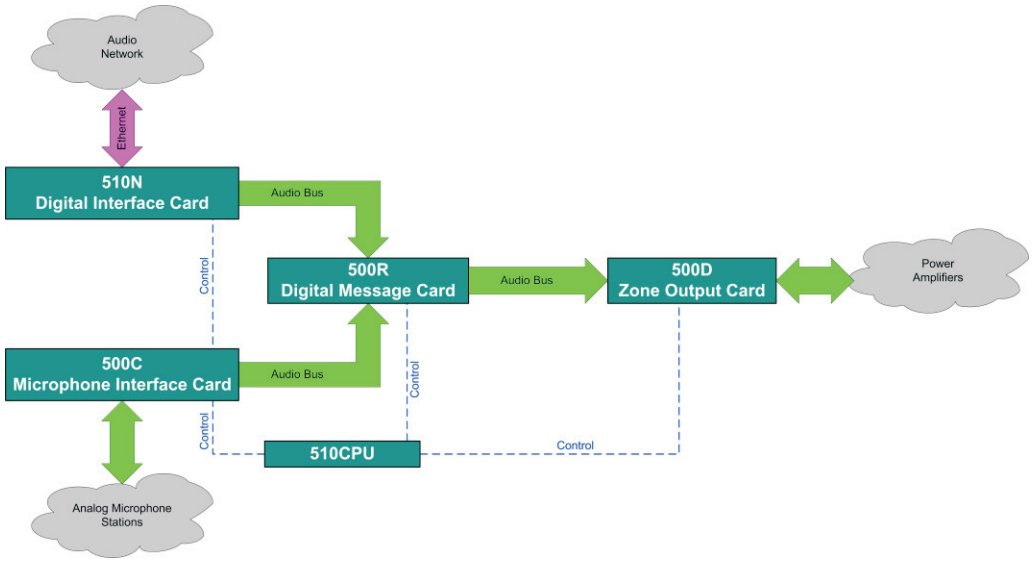

Figure 2 - 510N Functional Operation

PHYSICAL DESCRIPTION

The 510N card provides two RJ45 connections to allow for the use of redundant Ethernet networks. It also contains two auxiliary inputs and outputs for additional functionality.

Each card has two sets of eight LEDs to provide a visual indication of the status of the audio bus inputs and audio bus outputs. Two sets of LEDs are provided to indicate the link status and activity of the primary and secondary Ethernet audio ports. The card also contains a status indicator LED and a reset switch.

The Model 510N card is designed to plug into a Model 500M Mainframe using two card edge connectors. The 80 pin upper connector, which is mounted on the mainframe mother board, is used for connections to the microprocessor bus and to the DC power supplies. The 60 pin lower connector is mounted on the Model 510NT Network Interface Terminal Board which is part of the 500M Mainframe. It accepts two RJ45 connections for connection to the primary and secondary audio networks. It accepts connections to the two auxiliary inputs and outputs through removable compression type screw terminal connectors.

The card contains two 20-pin ribbon cable connectors. The upper connector interfaces with the 8 buses that send audio to the 500R card. The lower connector interfaces with the 8 busses that receive audio from the 500R card.

Up to 8 510Ns may be used in any one ACS system.

Network Information

The IED 510N card has low latency (less than 10 ms), and operates over industry standard Ethernet (100BASE-T). It uses a sample rate of 48 kHz, with a word length of 16 bits.

The IED 510N card utilizes protocol operating at the Data Link Layer (OSI Layer 2) using Fast Ethernet via category 5e or category 6 cable. This audio over Ethernet technology is licensed by IED from Cirrus Logic®.

SPECIFICATIONS

CONTROL

1. Processor . . . . . Intel 80296®
2. Digital Audio Network Interface. . . . . Cirrus Logic CM-1-FW®

POWER

1. Supply Voltage Range
   - +5 VDC . . . . . +4.75 V to +5.25 V
   - +15 VDC . . . . . +13.5 V to +16.5 V
   - –15 VDC . . . . . –16.5 V to –13.5 V
2. Supply Current
   - +5 VDC . . . . . TBD
   - +15 VDC . . . . . TBD
   - -15 VDC . . . . . TBD

CONNECTORS

1. Audio Bus Inputs . . . . . 20-pin Right Angle Header
2. Audio Bus Outputs . . . . . 20-pin Right Angle Header
3. JTAG Programming Port. . . . . 10-pin Header
4. Microprocessor Interface . . . . . 80-pin Edge Connector
5. Ethernet, serial port, auxiliary audio I/O . . . . . 60-pin Edge Connector

INDICATORS

1. CPU Status . . . . . Green (OK), Red (Fault)
2. Conduct/Active (2) . . . . . Green (Active), Orange (Conductor), Off (Fault)
3. Ethernet Link/Error (2) . . . . . Green (Link), Red (Fault)
4. Bus Inputs (8) . . . . . Amber (Sending Digital Audio)
5. Bus Outputs (8) . . . . . Amber (Receiving Digital Audio)

   NOTE: Status indicator will flash red upon boot until the 510N card is recognized by the 510CPU

MECHANICAL

1. Width . . . . . (30.5 cm) 12.0”
2. Length . . . . . (23.5 cm) 9.25”
3. Height . . . . . (2.2 cm) 0.875”
4. Weight. . . . . (0.453 kg)1 lb

ENVIRONMENTAL

1. Operating Temperature Range . . . . . (+32°F - +104°F) 0°C - +40°C
2. Storage Temperature Range . . . . . (-40°F - +158°F) -40°C - +70°C

NOTE: Features and specifications are subject to change without notice.

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