Peavey®

Commercial Audio

MediaMatrix®

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

NION® Series

NION® is the latest in a long line of quality audio products from MediaMatrix®. Rooted in the legacy of the incredible power of MediaMatrix technology, NION takes the world's standard for audio processing to higher levels than ever before.

Built on an architecture designed for stable, efficient and robust performance, NION features a new 512-channel audio bus for seamless expandability. Low-latency audio makes NION perfect for performance audio projects, in addition to applications where a massive amount of audio processing is required. A new floating-point-based DSP engine and the world's most efficient and high performance audio algorithms make NION the most powerful configurable DSP core ever built for the commercial, engineered systems marketplace. The NWare™ programming software includes advanced configuration and control tools (including an optional ControlManager™ software/hardware package), support for SNMP and a new vector-based graphical user interface. Intuitive network-centric role assignments and extensive transport options make NION an unbeatable product for large and small projects alike. NION will change the way you design forever.

A unique combination of processing power, I/O flexibility, control and versatile infrastructure support.

NION® feature set
NION n6 / NION n3 / NION nX

- Floating-point DSP engine
- World-famous MediaMatrix® audio algorithms
- 96 channels total audio I/O
- 32-bit processing engine
- 24-bit conversion
- Scalable I/O architecture with two or four NIO Series card bays
- Low-latency audio performance
- Integrated, modular CobraNet I/O
- Network-centric architecture
- Supports centralized, distributed or hybrid processing infrastructure
- Integrated serial support
- Front panel interface with intuitive user input controls
- Robust embedded Linux system processor/controller
- Supports ControlMatrix® & PageMatrix™ paging applications
- Integrated flash-based storage
- Windows-based configuration and control client (Windows® 2000 or XP)

- Full support for SNMP network management tools
- Universal industrial-grade power supply
- Software support for large-scale multi-node systems
- Advanced DSP compiler
- Configurable GPIO with optional DIN rail euro breakout panel
- Transparent control grouping across physical "NioNodes"
- Supports redundant, self-healing configurations
- Supports sample rates from 16 kHz to 96 kHz
- Stand-alone, multiple and/or distributed operation
- NWare™ programming and control software package
- ControlManager software/hardware control solution for multiple projects in one installation
- 32x32 CobraNet transport included in all models

Commercial Audio
http://commercial.peavey.com

Distributed or Centralized Processing?

The debate between centralized and distributed processing models is long over. NION® supports a robust infrastructure with systems built with modular network nodes. Each node includes an extremely powerful DSP engine, configurable I/O and a robust, 448-channel, low-latency expansion bus. From simple stand-alone systems to large hybrids of multiple configurations, NION supports any combination of processing, I/O and control.

Software

With NION, a robust vector-based software interface provides powerful, intuitive tools for configuring, controlling and managing NION systems. NWare™ and its associated Kiosk control client make it easy to manage audio transport, control, redundancy and hardware role assignments across any size of implementation.

Robust control functionality and support for SNMP provide rock-solid performance. And best of all, the industry's most comprehensive and continually expanding device set is provided, continuing the legendary power of MediaMatrix audio processing.

Modular

Key to the power of NION products is Peavey's Scalable I/O Architecture for maximum design flexibility and efficient hardware management. NION processing nodes are available in multiple configurations with more to come. The n6 and n3 audio processing nodes provide four Scalable I/O Card bays while the new nX includes two bays. All NION hardware products support the same variety of modular plug-in cards and software tools.

NION® n6/n3 exclusive... XDAB (external digital audio bus)
Seamlessly shares channels of digital audio between NIONs in a project.

• Exclusive to NION, n6 & n3
• Buss level expansion supports stacking of multiple NION nodes for large implementations
• Very low latency (two standard vectors)
• Direct connection between DSP system buss with very low latency
• Fully configurable
• Self-healing/redundant architecture
• Inherent Category 6 structured cable connectivity (3 meters/10' max length)

Robust air handling — Front panel audio and status monitoring

MediaMatrix

Intuitive user input

Visual communications status

Universal power supply

Four I/O bays support NIO Cards

Serial control RS-232

XDAB expansion bus — Configurable GPIO — Ethernet with SNMP support — Serial control RS-422/485 — Integrated CobraNet I/O

nion nE

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DESCRIPTION

The NION (n. nee-on) nE is a programmable digital audio processing node designed for professional and commercial audio and communications applications. Coupled with 3 floating-point DSPs and the industry's most efficient audio algorithms, the NION nE extends the world-class power of MediaMatrix to levels never seen before at a lower price that will be hard to resist. The internal processing core is supported by a wide range of features including MediaMatrix's Scalable I/O Architecture, a modular I/O scheme that supports a variety of optional plug-in cards for maximum versatility. The four module bays support up to 64 simultaneous analog audio channels using NIO-AES cards (or up to 32 channels using 8 channel Nio cards). The optional CobraNet or Dante port provides another 64 channels, for a total of 128 simultaneous configurable audio channels. The NION nE is built on an embedded Linux architecture designed for stable, efficient and robust performance. Low-latency audio across all I/O ports makes NION perfect for performance audio projects, in addition to applications where a large amount of audio processing is required. Software support includes a Windows-based interface that works with multiple nodes across an Ethernet network. Additional support for third party control and SNMP management tools is included. Control interfacing is provided by both RS-232 and EIA-422/485 ports, while a configurable GPIO system makes interfacing with hard-contacts and logic systems easier than ever.

FEATURES

- Floating point DSP Engine with 3 DSP chips
- World-famous MediaMatrix audio algorithms
- 64 channels of audio I/O
- Additional 32x32 channels of audio I/O available with optional CobraNet or Dante module
- 32 bit processing engine
- 24 bit conversion
- Scalable I/O architecture with four NIO-card bays
- Low latency audio performance
- Network-centric architecture
- Supports centralized, distributed or hybrid processing
- Integrated serial support

- Robust Linux embedded system controller
- Integrated flash-based storage
- Windows configuration and control client
- Full support for SNMP network management tools
- Universal mini-ATX industrial-grade power supply
- Software support for large-scale multi-node systems
- Advanced DSP compiler
- Configurable GPIO (compatible DIN rail package available separately)
- Transparent control grouping across physical nodes
- Supports a range of sample rates from 22.05KHz to 96KHz
- Stand alone or combined operation

Specifications

Rear Panel Connections

Mains Power: 100v > 240v 50/60 Hz 300W A/C
LAN: Female RJ-45 - transports control and communications via Ethernet on Category 5e (CAT5) cabling.
EIA-422/485 Serial: Female DB-9 - supports bidirectional EIA-422/485 multi-dropped serial communications.
RS232 Serial: Female DB-9 - supports general purpose RS-232 communications.
CobraNet: Optional CM-1 Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via CobraNet audio network on CAT-5 cabling terminated with male RJ-45 jacks.
Dante: Optional DLM Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via Dante audio network on CAT-5 or better cabling terminated with male RJ-45 plugs.
GPIO: Female DB-25 - breaks out configurable general purpose logic and status connections to external DIN terminating block (available separately).
I/O Bays: 4x Proprietary I/O Card Slots - supports proprietary audio and interface cards, available separately.

Digital Audio Performance

Data Format: 32-bit floating point audio.
Processing: PowerPC Host (Linux OS) with 3 ADI SHARC Hammerhead digital signal processors.
DSP MFLOPS: 1200 sustained, 1800 peak.
Sample Rate: Configurable, 22.05KHz, 24KHz, 32KHz, 44.1KHz, 48KHz, 64KHz, 88.1KHz, 96KHz., supports multi-rate processing.
Latency: Configurable, minimum latency (analog in to analog out @ 48kHz sample rate, 8 sample vector) 1.8msec. Total latency varies with audio configuration.
Storage: 2GB Compact Flash, supports OS, configuration, control and .wav audio.

CobraNet Performance

Data Format: 20/24-bit audio.
Protocol: Ethernet w/ Proprietary CobraNet protocol.
Channels: 32x32 channels at 48kHz.
Maximum CobraNet Latency: 3 sample vectors.
Cable Length: 328 foot (100m) maximum.

Dante Performance

Data Format: 24-bit audio.
Protocol: Gigabit Ethernet / IP with proprietary Dante protocol.
Channels: 32x32 channels at 48kHz.
Cable Length: 328 foot (100m) maximum.

GPIO

Connections: 25 pins with 16 individually programmable pins, 4 switchable high current outputs, plus a form C fault relay.
Configurations: Digital Input / Analog Input / Digital Output software selectable.
Digital Input: Vin < 0.8v = logic 0; Vin > 2.0v = logic 1 (1.2v hysteresis).
Analog Input: 0.0v < Vin < 24.0v; 12-bit analog converter precision.
Digital Output: logic 0 Vout = 0.0v, Isink <= 2mA; logic 1 Vout = 3.3v, Isource <= 2mA.
High Current Outputs: 4 pins, each with a 0.5A self-resetting fuse and protection diodes for driving inductive loads. Vout = 11.5v nominal @ Isource = 0.5A. Direct short protection from ground to +36v.
Relay Contacts: Form C contacts rated at 0.3A @ 125VAC or 110VDC, or 1A @ 30VDC.

Mechanical Specifications

Chassis Style: 2RU EIA rack package.
Dimensions: 19 in. W x 16.8 in. D x 3.5 in. H

Architect's & Engineer's Specifications

Audio Processing Node

The audio processing node shall be a 2RU industrial package designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an integrated floating-point Digital Signal Processor (DSP) engine with at least 3 DSP chips. The DSP shall be completely configurable via a Windows-based software utility, with additional tools for creating user interface clients and integration with third-party control systems. Customizable I/O, control and signal flow design algorithms shall be integrated within the design environment for intuitive system configuration. This software shall include an XML architecture. Support for standard Ethernet management, including, but not limited to SNMP, shall be standard from an integrated, rear-panel LAN port. The audio processing node shall include an embedded Linux operating system. The operating system shall reside on non-mechanical IDE storage media. The storage system shall include support for reading/writing data from the operating system and configuration software. Audio file support for .wav audio shall be standard and shall be completely integrated with the unit's software tools. A non-mechanical storage device of at least 2GB shall be used as the primary storage media and operating system root. The audio processing node shall include a modular I/O card bay system for support of four expansion cards. Each expansion bay shall be capable of supporting not less than 16 inputs and 16 outputs of simultaneous audio. Cards shall be available for microphone and line-level analog audio with options for digital and proprietary audio transports. The audio node shall optionally include a CobraNet or Dante audio transport module with support for at least 64 20-bit digital audio channels. Separate software devices shall be provided for integrating the audio networking module I/O into the configuration file. The audio processing node shall include support for serial data transport via the RS-232 and EIA-422/485 ports. All data transports, including Ethernet, shall be available simultaneously and shall include software devices for integration into the configuration file. The audio processing node shall include an integrated GPIO control system with at least 16 configurable low-current, low voltage ports and 4 configurable high-current ports. All GPIO ports shall include software devices for integrating their function into the configuration file. The GPIO connections shall be externally terminated with a DIN-rail breakout assembly (available separately). Status LEDs shall be included on the front panel for monitoring audio faults and power conditions. The audio processing node shall be fan-cooled with a front panel intake and shall operate with a modular universal computer-grade power supply. The audio processing node shall be the MediaMatrix NION nE or approved equal.

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nion nX

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DESCRIPTION

The NION (n. nee-on) nX is a programmable digital audio processing node designed for professional and commercial audio and communications applications. Coupled with 3 floating-point DSPs and the industry's most efficient audio algorithms, the NION nX extends the world-class power of MediaMatrix to levels never seen before at a lower price that will be hard to resist. The internal processing core is supported by a wide range of features including MediaMatrix's Scalable I/O Architecture, a modular I/O scheme that supports a variety of optional plug-in cards for maximum versatility. The four module bays support up to 64 simultaneous analog audio channels using NIO-AES cards (or up to 32 channels using 8 channel Nio cards). The integrated CobraNet or Dante port provides another 64 channels, for a total of 128 simultaneous configurable audio channels. The NION nX is built on an embedded Linux architecture designed for stable, efficient and robust performance. Low-latency audio across all I/O ports makes NION perfect for performance audio projects, in addition to applications where a large amount of audio processing is required. Software support includes a Windows-based interface that works with multiple nodes across an Ethernet network. Additional support for third party control and SNMP management tools is included. An intuitive front panel interface features an LCD display, soft buttons and rotary encoder to enable access to common system functions. Additional control interfacing is provided by both RS-232 and EIA-422/485 ports, while a configurable GPIO system makes interfacing with hard-contacts and logic systems easier than ever.

FEATURES

- Floating point DSP Engine with 3 DSP chips
- World-famous MediaMatrix audio algorithms
- 128 channels total audio I/O
- 32 bit processing engine
- 24 bit conversion
- Scalable I/O architecture with four NIO-card bays
- Low latency audio performance
- Integrated CobraNet or Dante I/O
- Network-centric architecture
- Supports centralized, distributed or hybrid processing
- Integrated serial support
- Front panel interface with intuitive user input controls
- Robust Linux embedded system controller

- Integrated flash-based storage
- Windows configuration and control client
- Full support for SNMP network management tools
- Universal mini-ATX industrial-grade power supply
- Software support for large-scale multi-node systems
- Advanced DSP compiler
- Configurable GPIO (compatible DIN rail package available separately)
- Transparent control grouping across physical nodes
- Supports a range of sample rates from 22.05KHz to 96KHz
- Stand alone or combined operation
- All DSP algorithms from n3 and n6 are supported

Specifications

Rear Panel Connections

Mains Power: 100v > 240v 50/60 Hz 300W A/C
LAN: Female RJ-45 - transports control and communications via Ethernet on Category 5e (CAT5) cabling.
EIA-422/485 Serial: Female DB-9 - supports bi-directional EIA-422/485 multi-dropped serial communications.
RS232 Serial: Female DB-9 - supports general purpose RS-232 communications.
CobraNet: CM-1 Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via CobraNet audio network on CAT-5 cabling terminated with male RJ-45 jacks.
Dante: DLM Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via Dante audio network on CAT-5 or better cabling terminated with male RJ-45 plugs.
GPIO: Female DB-25 - breaks out configurable general purpose logic and status connections to external DIN terminating block (available separately).
I/O Bays: 4x Proprietary I/O Card Slots - supports proprietary audio and interface cards, available separately.

Digital Audio Performance

Data Format: 32-bit floating point audio.
Processing: PowerPC Host (Linux OS) with 3 ADI SHARC Hammerhead digital signal processors.
DSP MFLOPS: 1200 sustained, 1800 peak.
Sample Rate: Configurable, 22.05KHz, 24KHz, 32KHz, 44.1KHz, 48KHz, 64KHz, 88.1KHz, 96KHz., supports multi-rate processing.
Latency: Configurable, minimum latency (analog in to analog out @ 48kHz sample rate, 8 sample vector) 1.8msec. Total latency varies with audio configuration.
Storage: 256MB Compact Flash, supports OS, configuration, control and .wav audio.

CobraNet Performance

Data Format: 20/24-bit audio.
Protocol: Ethernet w/ Proprietary CobraNet protocol.
Channels: 32x32 channels at 48kHz.
Maximum CobraNet Latency: 3 sample vectors.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

Dante Performance

Data Format: 24-bit audio.
Protocol: Gigabit Ethernet / IP with proprietary Dante protocol.
Channels: 32x32 channels at 48kHz.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

GPIO

Connections: 16 pins, with individually programmable operational modes.
Configurations: Digital Input / Analog Input / Digital Output software selectable.

Digital Input: Vin < 0.8v = logic 0; Vin > 2.0v = logic 1 (1.2v hysteresis).
Analog Input: 0.0v < Vin < 24.0v; 12-bit analog converter precision.
Digital Output: logic 0 Vout = 0.0v, Isink <= 2mA; logic 1 Vout = 3.3v, Isource <= 2mA.
High Current Outputs: 4 pins, each with a 0.5A self-resetting fuse and protection diodes for driving inductive loads. Vout = 11.5v nominal @ Isource = 0.5A. Direct short protection from ground to +36v.
Relay Contacts: Form C contacts rated at 0.3A @ 125VAC or 110VDC, or 1A @ 30VDC.

Mechanical Specifications

Chassis Style: 2RU EIA rack package.
Dimensions: 19 in. W x 16.8 in. D x 3.5 in. H

Architect's & Engineer's Specifications

Audio Processing Node

The audio processing node shall be a 2RU industrial package designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an integrated floating-point Digital Signal Processor (DSP) engine with at least 3 DSP chips. The DSP shall be completely configurable via a Windows-based software utility, with additional tools for creating user interface clients and integration with third-party control systems. Customizable I/O, control and signal flow design algorithms shall be integrated within the design environment for intuitive system configuration. This software shall include an XML architecture. Support for standard Ethernet management, including, but not limited to SNMP, shall be standard from an integrated, rear-panel LAN port. The audio processing node shall include an embedded Linux operating system. The operating system shall reside on non-mechanical IDE storage media. The storage system shall include support for reading/writing data from the operating system, configuration software and the front panel. Audio file support for .wav audio shall be standard and shall be completely integrated with the unit's software tools. A non-mechanical storage device of at least 256MB shall be used as the primary storage media and operating system root. The audio processing node shall include a modular I/O card bay system for support of four expansion cards. Each expansion bay shall be capable of supporting not less than 16 inputs and 16 outputs of simultaneous audio. Cards shall be available for microphone and line-level analog audio with options for digital and proprietary audio transports. The audio node shall include a CobraNet or Dante audio transport module with support for at least 64 20-bit digital audio channels. Separate software devices shall be provided for integrating the audio networking module I/O into the configuration file. The audio processing node shall include support for serial data transport via the RS-232 and EIA-422/485 ports. All data transports, including Ethernet, shall be available simultaneously and shall include software devices for integration into the configuration file. The audio processing node shall include an integrated GPIO control system with at least 16 configurable low-current, low voltage ports and 4 configurable high-current ports. All GPIO ports shall include software devices for integrating their function into the configuration file. The GPIO connections shall be externally terminated with a DIN-rail breakout assembly (available separately). The audio processing node shall include a front panel interface with LCD display. Navigation of the display shall include a rotary data wheel with push switch and at least four context-sensitive soft buttons. Status LEDs shall be included on the front panel for monitoring network status, storage, audio faults and power conditions. The audio processing node shall be fan-cooled with a front-panel intake and shall operate with a modular universal computer-grade power supply. The audio processing node shall be the MediaMatrix NION nX or approved equal.

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nion n3

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DESCRIPTION

The NION (n. nee-on) n3 is a programmable digital audio processing node designed for professional and commercial audio and communications applications. Coupled with 3 floating-point DSPs and the industry's most efficient audio algorithms, the NION n3 extends the world-class power of MediaMatrix to levels never seen before. The internal processing core is supported by a wide range of features including MediaMatrix's Scalable I/O Architecture, a modular I/O scheme that supports a variety of optional plug-in cards for maximum versatility. The four module bays support up to 64 simultaneous analog audio channels using NIO-AES cards (or up to 32 channels using 8 channel Nio cards). The integrated CobraNet or Dante port provides another 64 channels, for a total of 128 simultaneous configurable audio channels. The NION n3 is built on an embedded Linux architecture designed for stable, efficient and robust performance. A 448-channel digital audio bus allows for seamless stacking and redundant, self-healing configurations. Low-latency audio across all I/O ports makes NION perfect for performance audio projects, in addition to applications where a large amount of audio processing is required. Software support includes a Windows-based interface that works with multiple nodes across an Ethernet network. Additional support for third party control and SNMP management tools is included. An intuitive front panel interface features an LCD display, soft buttons and rotary encoder to enable access to common system functions. Additional control interfacing is provided by both RS-232 and EIA-422/485 ports, while a configurable GPIO system makes interfacing with hard-contacts and logic systems easier than ever.

FEATURES

- Floating point DSP Engine with 3 DSP chips
- World-famous MediaMatrix audio algorithms
- 128 channels total audio I/O
- 32 bit processing engine
- 24 bit conversion
- Scalable I/O architecture with four NIO-card bays
- Low latency audio performance
- Integrated CobraNet or Dante I/O
- Network-centric architecture
- Supports centralized, distributed or hybrid processing
- Integrated serial support
- X-DAB bus supports up to 448 bi-directional audio channels
- Front panel interface with intuitive user input controls
- Robust Linux embedded system controller

- Integrated flash-based storage
- Windows configuration and control client
- Full support for SNMP network management tools
- Universal mini-ATX industrial-grade power supply
- Software support for large-scale multi-node systems
- Advanced DSP compiler
- Configurable GPIO (compatible DIN rail package available separately)
- Transparent control grouping across physical nodes
- Supports redundant, self-healing configurations
- Supports a range of sample rates from 22.05KHz to 96KHz
- Stand alone or combined operation

Specifications

Rear Panel Connections

Mains Power: 100v > 240v 50/60 Hz 300W A/C
LAN: Female RJ-45 - transports control and communications via Ethernet on Category 5e (CAT5) cabling.
XDAB: Dual Female RJ-45 Connector - proprietary LVDS signaling via shielded Category 6 (CAT6) cable terminated with shielded male RJ-45 jacks, max. length 15'.
EIA-422/485 Serial: Female DB-9 - supports bi-directional EIA-422/485 multi-dropped serial communications.
RS232 Serial: Female DB-9 - supports general purpose RS-232 communications.
CobraNet: CM-1 Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via CobraNet audio network on CAT-5 cabling terminated with male RJ-45 jacks.
Dante: DLM Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via Dante audio network on CAT-5 or better cabling terminated with male RJ-45 plugs.
GPIO: Female DB-25 - breaks out configurable general purpose logic and status connections to external DIN terminating block (available separately).
I/O Bays: 4x Proprietary I/O Card Slots - supports proprietary audio and interface cards, available separately.

Digital Audio Performance

Data Format: 32-bit floating point audio.
Processing: PowerPC Host (Linux OS) with 3 ADI SHARC Hammerhead digital signal processors.
DSP MFLOPS: 1200 sustained, 1800 peak.
Sample Rate: Configurable, 22.05KHz, 24KHz, 32KHz, 44.1KHz, 48KHz, 64KHz, 88.1KHz, 96KHz., supports multi-rate processing.
Latency: Configurable, minimum latency (analog in to analog out @ 48kHz sample rate, 8 sample vector) 1.8msec. Total latency varies with audio configuration.
Storage: 256MB Compact Flash, supports OS, configuration, control and .wav audio.

XDAB Performance

Data Format: 32-bit floating point audio.
Protocol: Proprietary.
Channels: 448 channels at 48kHz, 224 channels at 96kHz.
Maximum XDAB Latency: 3 sample vectors.
Synchronization: +/-20ns box-to-box word clock sync.
Redundancy: Dual counter-rotating rings.
Cable Length: 3 meters maximum cable length.

CobraNet Performance

Data Format: 20/24-bit audio.
Protocol: Ethernet w/ Proprietary CobraNet protocol.
Channels: 32x32 channels at 48kHz.
Maximum CobraNet Latency: 3 sample vectors.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

Dante Performance

Data Format: 24-bit audio.
Protocol: Gigabit Ethernet / IP with proprietary Dante protocol.
Channels: 32x32 channels at 48kHz.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

GPIO

Connections: 16 pins, with individually programmable operational modes.
Configurations: Digital Input / Analog Input / Digital Output software selectable.
Digital Input: Vin < 0.8v = logic 0; Vin > 2.0v = logic 1 (1.2v hysteresis).
Analog Input: 0.0v < Vin < 24.0v; 12-bit analog converter precision.
Digital Output: logic 0 Vout = 0.0v, Isink <= 2mA; logic 1 Vout = 3.3v, Isource <= 2mA.
High Current Outputs: 4 pins, each with a 0.5A self-resetting fuse and protection diodes for driving inductive loads. Vout = 11.5v nominal @ Isource = 0.5A. Direct short protection from ground to +36v.
Relay Contacts: Form C contacts rated at 0.3A @ 125VAC or 110VDC, or 1A @ 30VDC.

Mechanical Specifications

Chassis Style: 2RU EIA rack package.
Dimensions: 19 in. W x 16.8 in. D x 3.5 in. H

Architect's & Engineer's Specifications

Audio Processing Node

The audio processing node shall be a 2RU industrial package designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an integrated floating-point Digital Signal Processor (DSP) engine with at least 3 DSP chips. The DSP shall operate with a common digital audio bus with support for at least 448 simultaneous high-speed digital audio channels. The digital audio bus shall include an external expansion port that supports bus-level connectivity for additional units. Separate transmit and receive ports shall be provided for the digital audio bus. Software devices shall be included to allow the digital audio expansion ports to be easily integrated into the configuration file. The audio processing node shall include a software-based configuration and control. The DSP shall be completely configurable via a Windows-based software system, with additional tools for creating user interface clients and integration with third-party control systems. Audio device algorithms shall support custom I/O, control and signal flow design and shall be integrated within the design environment for intuitive system configuration. This software shall include an XML architecture and support for standard Ethernet management, including, but not limited to SNMP, shall be standard from an integrated, rear panel LAN port. The audio processing node shall include an embedded Linux operating system. The operating system shall reside on non-mechanical IDE storage media. The storage system shall include support for reading/writing data from the operating system, configuration software and the front panel. Audio file support for .wav audio shall be standard and shall be completely integrated with the unit's software tools. A non-mechanical storage device of at least 256MB shall be used as the primary storage media and operating system root. The audio processing node shall include a modular I/O card bay system for support of four expansion cards. Each expansion bay shall be capable of supporting not less than 16 inputs and 16 outputs of simultaneous audio. Cards shall be available for microphone and line level analog audio with options for digital and proprietary audio transports. The audio node shall include a CobraNet or Dante audio transport module with support for at least 64 20-bit digital audio channels. Separate software devices shall be provided for integrating The audio networking module I/O into the configuration file. The audio processing node shall include support for serial data transport via the RS-232 and EIA-422/485 ports. All data transports, including Ethernet, shall be available simultaneously and shall include software devices for integration into the configuration file. The audio processing node shall include an integrated GPIO control system with at least 16 configurable low-voltage, low-current ports and 4 configurable high-current ports. All GPIO ports shall include software devices for integrating their function into the configuration file. The GPIO connections shall be externally terminated with a DIN-rail breakout assembly (available separately). The audio processing node shall include a front panel interface with LCD display. Navigation of the display shall include a rotary data wheel with push switch and at least four context-sensitive soft buttons. Dual color status LEDs shall be included on the front panel for monitoring network status, storage and power conditions. The audio processing node shall be fan cooled with a front-panel intake and shall operate with a modular universal computer-grade power supply. The audio processing node shall be the MediaMatrix NION n3 or approved equal.

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nion n6

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Networkable Input Output Node   **Data Sheet**

DESCRIPTION

The NION (n. nee-on) n6 is a programmable digital audio processing node designed for professional and commercial audio and communications applications. Coupled with 6 floating-point DSPs and the industry's most efficient audio algorithms, the NION n6 extends the world-class power of MediaMatrix to levels never seen before. The internal processing core is supported by a wide range of features including MediaMatrix's Scalable I/O Architecture, a modular I/O scheme that supports a variety of optional plug-in cards for maximum versatility. The four module bays support up to 64 simultaneous analog audio channels using NIO-AES cards (or up to 32 channels using 8 channel Nio cards). The integrated CobraNet or Dante port provides another 64 channels, for a total of 128 simultaneous configurable audio channels. The NION n6 is built on an embedded Linux architecture designed for stable, efficient and robust performance. A 448-channel digital audio bus allows for seamless stacking and redundant, self-healing configurations. Low-latency audio across all I/O ports makes NION perfect for performance audio projects, in addition to applications where a large amount of audio processing is required. Software support includes a Windows-based interface that works with multiple nodes across an Ethernet network. Additional support for third party control and SNMP management tools is included. An intuitive front panel interface features an LCD display, soft buttons and rotary encoder to enable access to common system functions. Additional control interfacing is provided by both RS-232 and EIA-422/485 ports, while a configurable GPIO system makes interfacing with hard-contacts and logic systems easier than ever.

FEATURES

- Floating point DSP Engine with 6 DSP chips
- World-famous MediaMatrix audio algorithms
- 128 channels total audio I/O
- 32 bit processing engine
- 24 bit conversion
- Scalable I/O architecture with four NIO-card bays
- Low latency audio performance
- Integrated CobraNet or Dante I/O
- Network-centric architecture
- Supports centralized, distributed or hybrid processing
- Integrated serial support
- X-DAB bus supports up to 448 bi-directional audio channels
- Front panel interface with intuitive user input controls
- Robust Linux embedded system controller

- Integrated flash-based storage
- Windows configuration and control client
- Full support for SNMP network management tools
- Universal mini-ATX industrial-grade power supply
- Software support for large-scale multi-node systems
- Advanced DSP compiler
- Configurable GPIO (compatible DIN rail package available separately)
- Transparent control grouping across physical nodes
- Supports redundant, self-healing configurations
- Supports a range of sample rates from 22.05KHz to 96KHz
- Stand alone or combined operation

Specifications

Rear Panel Connections

Mains Power: 100v > 240v 50/60 Hz 300W A/C
LAN: Female RJ-45 - transports control and communications via Ethernet on Category 5e (CAT5) cabling.
XDAB: Dual Female RJ-45 Connector - proprietary LVDS signaling via shielded Category 6 (CAT6) cable terminated with shielded male RJ-45 jacks, max. length 15'.
EIA-422/485 Serial: Female DB-9 - supports bi-directional EIA-422/485 multi-dropped serial communications.
RS232 Serial: Female DB-9 - supports general purpose RS-232 communications.
CobraNet: CM-1 Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via CobraNet audio network on CAT-5 cabling terminated with male RJ-45 jacks.
Dante: DLM Module with 2 Female RJ-45 connectors for redundancy - transports digital audio via Dante audio network on CAT-5 or better cabling terminated with male RJ-45 plugs.
GPIO: Female DB-25 - breaks out configurable general purpose logic and status connections to external DIN terminating block (available separately).
I/O Bays: 4x Proprietary I/O Card Slots - supports proprietary audio and interface cards, available separately.

Digital Audio Performance

Data Format: 32-bit floating point audio.
Processing: PowerPC Host (Linux OS) with 6 ADI SHARC Hammerhead digital signal processors.
DSP MFLOPS: 1200 sustained, 1800 peak.
Sample Rate: Configurable, 22.05KHz, 24KHz, 32KHz, 44.1KHz, 48KHz, 64KHz, 88.1KHz, 96KHz., supports multi-rate processing.
Latency: Configurable, minimum latency (analog in to analog out @ 48kHz sample rate, 8 sample vector) 1.8msec. Total latency varies with audio configuration.
Storage: 256MB Compact Flash, supports OS, configuration, control and .wav audio.

XDAB Performance

Data Format: 32-bit floating point audio.
Protocol: Proprietary.
Channels: 448 channels at 48kHz, 224 channels at 96kHz.
Maximum XDAB Latency: 3 sample vectors.
Synchronization: +/-20ns box-to-box word clock sync.
Redundancy: Dual counter-rotating rings.
Cable Length: 3 meters maximum cable length.

CobraNet Performance

Data Format: 20/24-bit audio.
Protocol: Ethernet w/ Proprietary CobraNet protocol.
Channels: 32x32 channels at 48kHz.
Maximum CobraNet Latency: 3 sample vectors.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

Dante Performance

Data Format: 24-bit audio.
Protocol: Gigabit Ethernet / IP with proprietary Dante protocol.
Channels: 32x32 channels at 48kHz.
Cable Length: 328 foot (100 m) maximum cable length between nodes.

GPIO

Connections: 16 pins, with individually programmable operational modes.
Configurations: Digital Input / Analog Input / Digital Output software selectable.
Digital Input: Vin < 0.8v = logic 0; Vin > 2.0v = logic 1 (1.2v hysteresis).
Analog Input: 0.0v < Vin < 24.0v; 12-bit analog converter precision.
Digital Output: logic 0 Vout = 0.0v, Isink <= 2mA; logic 1 Vout = 3.3v, Isource <= 2mA.
High Current Outputs: 4 pins, each with a 0.5A self-resetting fuse and protection diodes for driving inductive loads. Vout = 11.5v nominal @ Isource = 0.5A. Direct short protection from ground to +36v.
Relay Contacts: Form C contacts rated at 0.3A @ 125VAC or 110VDC, or 1A @ 30VDC.

Mechanical Specifications

Chassis Style: 2RU EIA rack package.
Dimensions: 19 in. W x 16.8 in. D x 3.5 in. H

Architect's & Engineer's Specifications

Audio Processing Node

The audio processing node shall be a 2RU industrial package designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an integrated floating-point Digital Signal Processor (DSP) engine with at least 6 DSP chips. The DSP shall operate with a common digital audio bus with support for at least 448 simultaneous high-speed digital audio channels. The digital audio bus shall include an external expansion port that supports bus-level connectivity for additional units. Separate transmit and receive ports shall be provided for the digital audio bus. Software devices shall be included to allow the digital audio expansion ports to be easily integrated into the configuration file. The audio processing node shall include a software-based configuration and control. The DSP shall be completely configurable via a Windows-based software system, with additional tools for creating user interface clients and integration with third-party control systems. Audio device algorithms shall support custom I/O, control and signal flow design and shall be integrated within the design environment for intuitive system configuration. This software shall include an XML architecture and support for standard Ethernet management, including, but not limited to SNMP, shall be standard from an integrated, rear panel LAN port. The audio processing node shall include an embedded Linux operating system. The operating system shall reside on non-mechanical IDE storage media. The storage system shall include support for reading/writing data from the operating system, configuration software and the front panel. Audio file support for .wav audio shall be standard and shall be completely integrated with the unit's software tools. A non-mechanical storage device of at least 256MB shall be used as the primary storage media and operating system root. The audio processing node shall include a modular I/O card bay system for support of four expansion cards. Each expansion bay shall be capable of supporting not less than 16 inputs and 16 outputs of simultaneous audio. Cards shall be available for microphone and line level analog audio with options for digital and proprietary audio transports. The audio node shall include a CobraNet or Dante audio transport module with support for at least 64 20-bit digital audio channels. Separate software devices shall be provided for integrating The audio networking module I/O into the configuration file. The audio processing node shall include support for serial data transport via the RS-232 and EIA-422/485 ports. All data transports, including Ethernet, shall be available simultaneously and shall include software devices for integration into the configuration file. The audio processing node shall include an integrated GPIO control system with at least 16 configurable low-voltage, low-current ports and 4 configurable high-current ports. All GPIO ports shall include software devices for integrating their function into the configuration file. The GPIO connections shall be externally terminated with a DIN-rail breakout assembly (available separately). The audio processing node shall include a front panel interface with LCD display. Navigation of the display shall include a rotary data wheel with push switch and at least four context-sensitive soft buttons. Dual color status LEDs shall be included on the front panel for monitoring network status, storage and power conditions. The audio processing node shall be fan cooled with a front-panel intake and shall operate with a modular universal computer-grade power supply. The audio processing node shall be the MediaMatrix NION n6 or approved equal.

MediaMatrix ®
Peavey Electronics Corporation

NIO™ Cards

NIO™-4x4

The NIO™-4x4 Mic/Line Input/Output Card is a four-channel mic/line level input and four-channel line level output device for use in NION® DSP frames. Modular analog audio input/output card and analog-to-digital and digital-to-analog converter for the NION Series of digital audio processing products. Depending on the NION model, up to four NIO-4x4 cards may be loaded in a NION DSP.

- **Includes 4 balanced mic or line level analog inputs terminated on mini Euro connector header**
- **Includes 8 Euro connectors blocks**
- **Supports NWare™ control of analog functions**
- **Includes 4 line-level analog outputs terminated on mini Euro connector header**

NIO™-8i

The NIO™-8i Line Input Card is an eight-channel line level input device for use in NION® DSP frames. Modular analog audio input card and analog-to-digital converter for the NION Series of digital audio processing products. Depending on the NION model, up to four NIO-8i cards may be loaded in a NION DSP.

- **Includes 8 balanced line-level analog inputs terminated on mini Euro connector header**
- **Includes NWare™ control of analog functions**
- **Eight line level audio Input channels**
- **24 bit A/D**
- **Includes 8 Euro connector blocks**
- **High-reliability DIN Connector to backplane, using slide rail for alignment**
- **Mini-Euro Connectors for easy input connection**
- **48kHz or 96kHz audio sampling rate supported**

Commercial Audio
http://commercial.peavey.com

MediaMatrix®

NIO™ Cards

NIO™-8o

The NIO™-8o Line Output Card is an eight-channel line-level analog output device for use in NION® DSP frames. Modular analog audio output card and digital-to-analog converter for the NION Series of digital audio processing products. Depending on the NION model, up to four NIO-8o cards may be loaded in a NION DSP.

- **Includes 8 balanced line-level analog outputs terminated on mini Euro connector header**
- **Includes 8 Euro connector blocks**
- **Includes NWare control of analog functions**
- **Eight line level output audio channels**
- **24 bit A/D**
- **48kHz or 96kHz audio sampling rate supported**
- **High-reliability DIN Connector to backplane, using slide rail for alignment**
- **Mini-Euro Connectors for easy input connection**

NIO™-8ml II

The NIO™-8 ml II mic/line input Card is an eight-channel mic/line level input device for use in NION® DSP frames. Modular analog audio input card and analog-to-digital converter for the NION Series of digital audio processing products. Depending on the NION model, up to four NIO-8 ml II cards may be loaded in a NION DSP.

- **Includes 8 balanced mic or line level analog inputs terminated on mini Euro connector header**
- **Includes 8 Euro connector blocks**
- **Supports NWare™ control of analog functions**
- **Eight line mic or line level input audio channels**
- **24 bit A/D**
- **48kHz or 96kHz audio sampling rate supported**
- **High-reliability DIN Connector to backplane, using slide rail for alignment**
- **Mini-Euro Connectors for easy input connection**

Commercial Audio
http://commercial.peavey.com

NIO™ Cards

NIO™-AEC

The NIO-AEC modular audio input and digital signal processing card for NION® series audio processing products includes eight balanced mic/line (selectable) analog inputs terminated on mini Euro connector header. Acoustic Echo Cancelling (AEC) algorithms on the card can source audio from either the input on the card or from another point in the NION. Each AEC algorithm has an individual reference signal for cancellation and both the processed and unprocessed audio is directly available within the NION to support different processing paths. 24-bit converters with sample rates to 96kHz and support for NWare control of analog functions included. Includes eight Euro connector blocks.

• **Includes 8 balanced mic or line level analog inputs terminated on mini Euro connector header**

• **DSP for AEC processing algorithm onboard**

• **Processed and unprocessed signals available in NION**

• **Each of the 8 algorithms features individual reference signals**

• **CobraNet® audio may be passed up to the card for AEC processing while still allowing the card's input to be used (unprocessed)**

• **Includes 8 Euro connector blocks**

• **Supports NWare™ control of analog functions**

NIO™-AES

The NIO™-AES Input/Output Card is an AES3 digital audio I/O device configured in eight pairs of channels. Modular digital audio input/output card and sample rate converter for the NION® Series of digital audio processing products. The AES I/O device is for use in NION DSP nodes. Depending on the NION model, up to four NIO-AES cards may be loaded in a NION DSP node.

• **Includes eight Euro connector blocks**

• **Input or Output Channel pairs may be selected individually in software**

• **S/PDIF Supported, enabled with on board dip switches**

• **Sample Rate Converters are defeatable in the NWare control software**

• **Eight Channel Pairs of AES3 Input or Output audio channels**

• **High reliability DIN Connector to backplane, using slide rail for alignment**

• **Mini-Euro Connectors for easy input connection**

• **Provides transformer balancing for AES/EBU compliance**

• **48kHz or 96kHz audio sampling rates supported**

Commercial Audio
http://commercial.peavey.com

MediaMatrix®
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Mic/Line Level Input/Output Card   **Data Sheet**

Description

The NION NIO-4x4 Mic/Line Input/Output Card is a device with 4 mic/line level inputs and 4 line level outputs for use in NION DSP frames. Depending on the NION model up to 4 NIO-4x4 cards may be loaded in a NION DSP.

Features

- Four analog mic/line level audio input channels
- Four analog line level audio output channels
- 24 bit A/D (inputs), 24 bit D/A (outputs)
- 48 or 96 kHz audio sampling rate supported
- High reliability DIN connector to backplane, using slide rail for alignment
- Mini-Euro connectors for easy input connection

Specifications

CATEGORY	INPUT CHANNELS	OUTPUT CHANNELS	DESCRIPTION
AUDIO CHANNELS	4	4	Analog mic/line level signals, adjustable per channel (input) Line level signals (output)
FREQUENCY RESPONSE	20 ~ 20 kHz (+/-0.5 dBr)	20 ~ 20 kHz (+0.5/-0.6 dBr)	Referenced @ 1 kHz, 22 dBu output level
RELATIVE PHASE	+/- 0.4 degrees	+/- 0.4 degrees	20 Hz ~ 20 kHz, referenced @ 1 kHz, 22 dBu output level
THD+N	0.004%	0.004%	22 kHz bandwidth measurement, +4 dBu signal with 20 dB Headroom
DYNAMIC RANGE	-110 dB	-110 dB	A-weight filter measure
CROSSTALK	-102 dB	-107 dB	20 Hz ~ 20 kHz, measured between channel pairs (1-2, 3-4) +33 to -42 dBu (input) 20 Hz ~ 20 kHz, measured between channel pairs (1-2, 3-4) (output)
PHANTOM POWER	48 VDC	NA	Available on a per channel basis
MAXIMUM INPUT SENSITIVITY SETTINGS	+33 to -42 dBu	NA	In 3dB increments, less than 1.0 dB error between settings
ANALOG GAIN	-3 TO +60 dB	NA	True analog gain
FULL-SCALE OUTPUT SETTINGS	NA	+24, +18, +12, +6 dBu	Less than 1.0 dBu error between settings
LINE INPUT IMPEDANCE	5.3K Ohms	NA	Effective for sensitivities of +33 dBu to +6 dBu
MIC INPUT IMPEDANCE	1.9K Ohms	NA	Effective for sensitivities of +3 dBu to -42 dBu
OUTPUT IMPEDANCE	NA	100 Ohms	Balanced
MINIMUM LOAD IMPEDANCE	NA	600 Ohms	Referenced to +22 dBu output
EQUIVALENT INPUT NOISE (EIN)	-129 dBu	NA	Referenced to +22 dBu output, 150 Ohms input termination, 22 kHz bandwidth measurement, Gain = 66 dB
SAMPLE RATE	32 kHz – 96 kHz	32 kHz – 96 kHz	

Notes:
1. All specifications are typical for any channel(s).
2. All measurements are made with an AC line of 120 Volts rms / 60 Hz.
3. All measurements are made using 600-ohm balanced loads at 24 dBu full scale unless otherwise stated.
4. All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated.
5. All measurements are made using 48 kHz sample rate.

Architect's & Engineer's Specifications

The mic/line level input/output processing card shall be an eight discrete channel device designed to add 4 mic preamps and/or line level analog inputs and 4 line level analog outputs for the NION DSP audio processing node. The slide rail support industrial package is designed to easily install in one of the slots provided on the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line level analog audio with options for digital and proprietary audio transports. All card types shall include separate software devices for integration into the configuration file. The mic/line level input/output processing card shall be the MediaMatrix NIO-4x4 or approved equal.

nion nio-8i

MediaMatrix
Peavey Electronics Corporation

Line Level Input Card	Data Sheet

Description

The NION NIO-8i Line Input Card is an 8 channel line level input device for use in NION DSP frames. Depending on the NION model up to 4 NIO-8i cards may be loaded in a NION DSP.

Features

- Eight Line Level Input audio channels
- 24 bit A/D
- 48 or 96 kHz audio sampling rate supported
- High reliability DIN Connector to backplane, using slide rail for alignment
- Mini-Euro Connectors for easy input connection

Specifications

AUDIO CHANNELS	8	Line-level signals only
FREQUENCY RESPONSE	20 ~ 20 kHz (+/-0.5 dBr)	Referenced @ 1 kHz. 22 dBu output level.
RELATIVE PHASE	+/- 0.4 degrees	20 ~ 20 kHz, referenced @ 1 kHz. 22 dBu output level.
THD+N	0.004%	22 kHz bandwidth measurement, +4 dBu signal with 20 dB Headroom
DYNAMIC RANGE	-110 dB	A-weight filter measure
CROSSTALK	-102 dB	20 ~ 20 kHz, measured between channel pairs (1-2, 3-4, 5-6, 7-8)
MAXIMUM INPUT SENSITIVITY SETTINGS	+30 to +3 dBu	In 3db increments, less than 1.0 dB error between settings
ANALOG GAIN	-3 TO +24dB	True analog gain
FULL-SCALE OUTPUT SETTINGS	NA	
LINE INPUT IMPEDANCE	5.3K Ohms	Effective for sensitivities of +33 dbu to +6 dbu
MIC INPUT IMPEDANCE	NA	
OUTPUT IMPEDANCE	NA	
MINIMUM LOAD IMPEDANCE	NA	
SAMPLE RATE	32 kHz – 96 kHz	

Notes:
1. All specifications are typical for any channel(s).
2. All measurements are made with an AC line of 120 Volts rms / 60 Hz.
3. All measurements are made using 600-ohm balanced loads at 24 dBu full scale unless otherwise stated.
4. All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated.
5. All measurements are made using 48 kHz sample rate.

Architect's & Engineer's Specifications

The line level input processing card shall be an eight discrete channel device designed to enable line level analog inputs for the NION DSP audio processing node. The slide rail support industrial package is designed to easily install in one of the slots provided on the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line level analog audio with options for digital and proprietary audio transports. All cards types shall include separate software devices for integration into the configuration file. The line level input processing card shall be the MediaMatrix NIO-8i or approved equal.

MediaMatrix

nion nio-8o

Line Level Output Card

Description

The NION NIO-8o Line Output Card is an 8 channel line level output device for use in NION DSP frames. Depending on the NION model up to 4 NIO-8o cards may be loaded in a NION DSP.

Features

- Eight Line Level Output audio channels
- 24 bit A/D
- 48 or 96 kHz audio sampling rate supported
- High reliability DIN Connector to backplane, using slide rail for alignment
- Mini-Euro Connectors for easy output connection

Specifications

AUDIO CHANNELS	8	Line-level signals only
FREQUENCY RESPONSE	20 ~ 20 kHz (+0.5/-0.6 dBr)	Referenced @ 1 kHz. 22 dBu output level.
RELATIVE PHASE	+/- 0.4 degrees	20 ~ 20 kHz, referenced @ 1 kHz. 22 dBu output level.
THD+N	0.004%	22 kHz bandwidth measurement, +4 dBu signal with 20 dB Headroom
DYNAMIC RANGE	-110 dB	A-weight filter measure
CROSSTALK	-107 dB	20 ~ 20 kHz, measured between channel pairs (1-2, 3-4, 5-6, 7-8)
MAXIMUM INPUT SENSITIVITY SETTINGS	NA	
ANALOG GAIN	NA	
FULL-SCALE OUTPUT SETTINGS	+24, +18, +12, +6 dBu	Less than 1.0 dB error between settings
LINE INPUT IMPEDANCE	NA	
MIC INPUT IMPEDANCE	NA	
OUTPUT IMPEDANCE	100 ohms	Balanced
MINIMUM LOAD IMPEDANCE	600 ohms	Referenced to +22 dBu output
SAMPLE RATE	32 kHz – 96 kHz	

Notes:
1. All specifications are typical for any channel(s).
2. All measurements are made with an AC line of 120 Volts rms / 60 Hz.
3. All measurements are made using 600-ohm balanced loads at 24 dBu full scale unless otherwise stated.
4. All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated.
5. All measurements are made using 48 kHz sample rate.

Architect's & Engineer's Specifications

The line level input processing card shall be an eight discrete channel device designed to enable line level analog outputs for the NION DSP audio processing node. The slide rail support industrial package is designed to easily install in one of the slots provided on the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line level analog audio with options for digital and proprietary audio transports. All cards types shall include separate software devices for integration into the configuration file. The line level output processing card shall be the MediaMatrix NIO-8o or approved equal.

nion nio-mII

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Mic/Line Level Input Card

Data Sheet

Description

The NION NIO-8 ml II Mic/Line Input Card is an 8 channel mic/line level input device for use in NION DSP frames. Depending on the NION model up to 4 NIO-8i cards may be loaded in a NION DSP.

Features

- Eight Line Mic or Line Level Input audio channels

- 24 bit A/D

- 48 or 96 kHz audio sampling rate supported

- High reliability DIN Connector to backplane, using slide rail for alignment

- Mini-Euro Connectors for easy input connection

Specifications

AUDIO CHANNELS	8	Mic-Line-level signals
FREQUENCY RESPONSE	20 ~ 20 kHz (+/-0.5 dBr)	Referenced @ 1 kHz. 22 dBu output level
RELATIVE PHASE	+/- 0.4 degrees	20 ~ 20 kHz, referenced @ 1 kHz. 22 dBu output level.
THD+N	0.004%	22 kHz bandwidth measurement, +4 dBu signal with 20 dB Headroom
DYNAMIC RANGE	-110 dB	A-weight filter measure
CROSSTALK	-102 dB	20 ~ 20 kHz, measured between channel pairs (1-2, 3-4, 5-6, 7-8) +33 to -42 dBu
PHANTOM POWER	48 VDC	Available on a per channel basis
MAXIMUM INPUT SENSITIVITY SETTINGS	+33 to -42 dBu	In 3db increments, less than 1.0 dB error between settings
ANALOG GAIN	-3 TO +60 dB	True analog gain
FULL-SCALE OUTPUT SETTINGS	NA	
LINE INPUT IMPEDANCE	5.3K Ohms	Effective for sensitivities of +33 dbu to +6 dbu
MIC INPUT IMPEDANCE	1.9K Ohms	Effective for sensitivities of +3 dbu to -42 dbu
OUTPUT IMPEDANCE / MINIMUM LOAD IMPEDANCE	NA	
EQUIVALENT INPUT NOISE (EIN)	-129 dBu	Referenced to +22 dBu output, 150☐ input termination, 22 kHz bandwidth measurement, Gain = 66 dB.
SAMPLE RATE	32 kHz – 96 kHz	

Notes:
1.   All specifications are typical for any channel(s).
2.   All measurements are made with an AC line of 120 Volts rms / 60 Hz.
3.   All measurements are made using 600-ohm balanced loads at 24 dBu full scale unless otherwise stated.
4.   All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated.
5.   All measurements are made using 48 kHz sample rate.

Architect's & Engineer's Specifications

The mic-line level input processing card shall be an eight discrete channel device designed to add mic preamps and/or line level analog inputs for the NION DSP audio processing node. The slide rail support industrial package is designed to easily install in one of the slots provided on the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line level analog audio with options for digital and proprietary audio transports. All cards types shall include separate software devices for integration into NWare configuration file. The mic-line level input processing card shall be the MediaMatrix NIO-8ml II or approved equal.
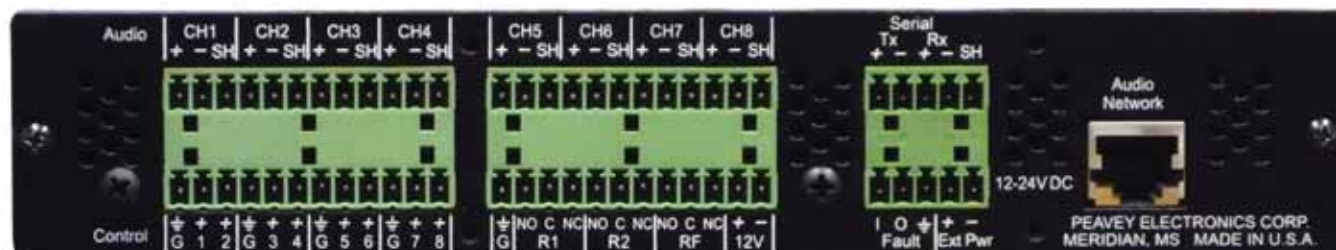
MediaMatrix®

nion nio-AEC

MediaMatrix
Peavey Electronics Corporation

Acoustic Echo Canceling Card

Data Sheet

Description

The NION NIO-AEC Acoustic Echo Canceling Card is a wideband echo canceling device with 8 mic/line-level inputs for use in NION DSP frames. Depending on the NION model, up to 4 NIO-AEC cards may be loaded in a NION DSP.

Features

- Eight analog mic or line-level audio input channels with 24 bit A/D

- Eight channels of wideband acoustic echo cancellation

- Acoustic echo cancellation can be applied to mic input or internal audio input channels (from NION)

- 48 and 96 kHz audio sampling rates supported

- High reliability DIN connector to backplane, using slide rail for alignment

- Mini-Euro connectors for easy input connection

Specifications

CATEGORY	INPUT CHANNELS	DESCRIPTION
AUDIO CHANNELS	8	Analog mic/line-level signals, selectable per channel, and AEC processing
FREQUENCY RESPONSE	20 ~ 20 kHz (+/-0.5 dBr)	Referenced @ 1 kHz, 22 dBu input level, via AEC processor
ANALOG INPUT: RELATIVE PHASE	+/- 0.4 degrees	20 Hz ~ 20 kHz, referenced @ 1 kHz, 22 dBu input level
ANALOG INPUT: THD+N	0.004%	22 kHz bandwidth measurement, +4 dBu signal with 20 dB Headroom
ANALOG INPUT: DYNAMIC RANGE	-110 dB	A-weight filter measure
ANALOG INPUT: CROSSTALK	-102 dB	20 Hz ~ 20 kHz, measured between channel pairs (1-2, 3-4, 5-6, 7-8) +33 to -42 dBu
PHANTOM POWER	48 VDC	Available on a per channel basis
MAXIMUM INPUT SENSITIVITY SETTINGS	+21 to -42 dBu	In 3dB increments, less than 1.0 dB error between settings
ANALOG GAIN	-3 TO +60 dB	True analog gain
LINE INPUT IMPEDANCE	5.3K Ohms	Effective for sensitivities of +33 dbu to +6 dbu
MIC INPUT IMPEDANCE	1.9K Ohms	Effective for sensitivities of +3 dBu to -42 dBu
EQUIVALENT INPUT NOISE (EIN)	-129 dBu	Referenced to +22 dBu input, 150 Ohms input termination, 22 kHz bandwidth measurement, Gain = 66 dB
SAMPLE RATE	32 kHz – 96 kHz	

Notes:
1. All specifications are typical for any channel(s).
2. All measurements are made with an AC line of 120 Volts rms / 60 Hz.
3. All measurements are made using 600-ohm balanced loads at 24 dBu full scale unless otherwise stated.
4. All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated.
5. All measurements are made using 48 kHz sample rate.

Architect's & Engineer's Specifications

The mic/line-level input processing and acoustic echo canceling card shall be an eight discrete channel device designed to add mic preamps and/or line-level analog inputs to the NION DSP audio processing node. It shall also allow wideband acoustic echo cancellation to be applied to the mic input or internal audio input channels. The slide rail support industrial package is designed to easily install in one of the slots provided at the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line-level analog audio with options for digital and proprietary audio transports. All card types shall include separate software devices for integration into the configuration file. The mic/line-level input processing and acoustic echo canceling card shall be the MediaMatrix NIO-AEC or approved equal.

n i o n n i o - aes

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AES Input/ Output Card   **Data Sheet**

Description

The NION NIO-AES Input/Output Card is an AES I/O device configured in 8 pairs of channels. The AES I/O device is for use in NION DSP nodes. Depending on the NION model up to 4 NIO-AES cards may be loaded in a NION DSP node.

Features

- Eight Channel Pairs of AES Input or Output audio channels

- Inputs or Output Channel pairs may be selected individually in software

- 48 or 96 kHz audio sampling rate supported

- S/PDIF Supported, enabled with internal dipswitches

- High reliability DIN Connector to backplane, using slide rail for alignment

- Mini-Euro Connectors for easy input connection

Specifications

AUDIO CHANNELS (PAIRS)	8	Each Channel pair software configured as inputs or outputs
AES/EBU INPUT IMPEDANCE	110 Ohms	Transformer balanced / isolated
AES/EBU OUTPUT IMPEDANCE	112 Ohms	Transformer balanced / isolated
S/PDIF INPUT IMPEDANCE	78 Ohms	Transformer balanced / isolated
S/PDIF OUTPUT IMPEDANCE	74 Ohms	Transformer balanced / isolated
AES/EBU OUTPUT VOLTAGE	5 Vp-p	110 Ohm load
AES/EBU OUTPUT RISE/FALL TIME	6 ns	110 Ohm load
SAMPLE RATE CONVERSION RANGE	32 kHz – 96 kHz	SRC can be disabled
MAX SIGNAL ATTENUATION FOR AES/EBU INPUT	-20 dB	
MAX RISE TIME FOR AES/EBU INPUT	30 nS	
S/PDIF MODE	YES	Hardware configured (circuit board jumpers

Architect's & Engineer's Specifications

The NIO-AES input/output processing card shall be an eight discrete channel paired device designed to enable AES or S/PDIF inputs or outputs to the NION DSP audio processing node. The slide rail support industrial package is designed to easily install in one of the slots provided on the rear of the NION DSP audio processing node. The connection at the rear of the card shall use a DIN connector. Cards shall be available for mic and line level analog audio with options for digital and proprietary audio transports. All cards types shall include separate software devices for integration into NWare configuration file. The mic-line level input processing card shall be the MediaMatrix NIO-AES or approved equal.

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

CAB™ 8n

The MediaMatrix® CAB™ 8n is an 8x8 Cobra-Net® configurable digital audio bridge from MediaMatrix that provides an unparalleled eight individually configured audio channels for networked digital audio systems.

The CAB 8n is a compact, half-width, 1RU-tall device that allows convenient mounting in equipment racks and under tables. The unique I/O configuration means all the inputs and outputs required can be handled by a single box, and everything can be connected via a single Ethernet cable when used with any standard PoE (Power over Ethernet) network switch or standard power injector. A 12VDC power inlet is included for situations where PoE is not available.

The CAB 8n also includes GPIO and serial bridging, including eight programmable pins and two Form C relays. The serial bridging is capable of handling RS-232, EIA-422 and EIA-485.

- 8 analog audio channels, individually configurable as inputs or outputs
- Fault Relay featuring N/O and N/C connections
- 2 Form C relays
- All connections are made with mini-Euro connectors
- Power over Ethernet (PoE) or external 24VDC power supply (provided)
- Audio signal LEDs on the front panel
- Rackmountable, 1RU tall by half-rack width
- 8 programmable GPIO pins
- Serial Bridging support for RS-232, EIA-485 and EIA-422
- Phantom power: 48V, software-selectable per input channel
- Audio sample rate: 48kHz
- Frequency response, inputs and outputs: 20Hz - 20kHz, +0/-0.3dB, referenced at 1kHz, unity gain
- Input dynamic range: 110dB, A-weight filter

- Equivalent input noise: -126dBu
- Input CMRR: >70dB
- Input gain control: -3dB to +60dB in 0.25dB steps
- Maximum input level: +24dBu
- Input impedance, mic mode: 1.9kOhm
- Input impedance, line mode: 8.4kOhm
- Input THD+N: 0.01% 10Hz - 22kHz measurement bandwidth, +4dBu signal with 20dB headroom
- Output dynamic range: 110dB, A-weight filter measure
- Output level control: -96dBu to +22dBu full-scale, analog level control
- Maximum output level: +24dBu
- Output impedance: <60Ohms
- Output THD+N: 0.006%, 10Hz - 22kHz measurement bandwidth, +4dBu signal with 20dB headroom

Commercial Audio

http://commercial.peavey.com

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

CAB™ 4n-CM1

The CAB™ 4n continues in the tradition of high-end audio networking set forth by the time-tested CAB Series. In fact, the CAB 4n break-out box was designed specifically for NION®-based systems. The CAB 4n-CM1 (required for ControlMatrix® projects) features the MediaMatrix® Scalable I/O Architecture, with support for the popular line of MediaMatrix I/O modules (up to four modules configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation, IxO). All inputs can be configured in groups of four channels for microphone or line level in any of the available configurations. The CAB 4n features a versatile, performance-oriented GPIO port, which provides configurable contacts for analog, digital and dry contact use. All of the GPIO ports are configurable from the NWare™ software and an easy DIN rail mounting system for efficient rack wiring and service is available as the GPIO-25.

- Four 16-position front panel rotary switches for unit ID
- Fault relay for hardware indication of unit status, NO and NC connections, contacts rated for 1A
- Buddy Link provides automatic redundancy
- Advanced audio routing when integrated with NION
- 4 "Form C" relays with NO and NC connections, contacts rated for 1A
- Scalable I/O Architecture
- Configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation
- Inputs configurable in groups of four channels for microphone or line-level input and line-level output
- GPIO port
- GPIO-25 DIN rail breakout panel for external control terminations
- 8 Configurable GPIO pins
- Fan cooled 2RU package with NION cosmetics
- 48kHz sample-rate
- Front panel audio metering
- 24-bit quantization 64x oversampling
- Front panel network status and fault indicators
- Front panel level meter for each channel
- Universal power supply (100-240V 50-60Hz)

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

CAB™ 4n-CM2

The CAB™ 4n continues in the tradition of high-end audio networking set forth by the time-tested CAB Series. In fact, the CAB 4n break-out box was designed specifically for NION®-based systems. The CAB 4n features the MediaMatrix® Scalable I/O Architecture, with support for the popular line of MediaMatrix I/O modules (up to four modules configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation, IxO). All inputs can be configured in groups of four channels for microphone or line level in any of the available configurations. The CAB 4n features a versatile, performance-oriented GPIO port, which provides configurable contacts for analog, digital and dry contact use. All of the GPIO ports are configurable from the NWare™ software and include an easy DIN rail mounting system for efficient rack wiring and service.

- Four 16-position front panel rotary switches for unit ID
- Fault relay for hardware indication of unit status, NO and NC connections, contacts rated for 1A
- Buddy Link provides automatic redundancy
- Advanced audio routing when integrated with MediaMatrix
- Universal power supply (100-240V 50-60 Hz)
- 4 "Form C" relays with NO and NC connections, contacts rated for 1A
- Configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation
- Inputs configurable in groups of four channels for microphone or line-level input and line-level output
- GPIO port
- GPIO-25 DIN rail breakout panel for external control terminations

- Fan cooled 2U package with NION cosmetics
- 8 Configurable GPIO pins
- Front panel audio metering
- 48kHz sample-rate
- Front panel network status and fault indicators
- 24-bit quantization 64x oversampling
- Front panel level meter for each channel
- Scalable I/O Architecture

Commercial Audio
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CAB™ 4n-Dante

The CAB™ 4n continues in the tradition of high-end audio networking set forth by the time-tested CAB Series. In fact, the CAB 4n break-out box was designed specifically for NION®-based systems. The CAB 4n features the MediaMatrix® Scalable I/O Architecture, with support for the popular line of MediaMatrix I/O modules (up to four modules configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation, IxO). All inputs can be configured in groups of four channels for microphone or line level in any of the available configurations. The CAB 4n features a versatile, performance-oriented GPIO port, which provides configurable contacts for analog, digital and dry contact use. All of the GPIO ports are configurable from the NWare™ software and include an easy DIN rail mounting system for efficient rack wiring and service.

- **Four 16-position front panel rotary switches for unit ID**
- **Front panel level meter for each channel**
- **24-bit quantization 64x oversampling**
- **48kHz sample-rate**
- **8 Configurable GPIO pins**
- **4 "Form C" relays with NO and NC connections, contacts rated for 1A**
- **Fault relay for hardware indication of unit status, NO and NC connections, contacts rated for 1A**

- **Universal power supply (100-240V 50-60Hz)**
- **Scalable I/O Architecture**
- **Configurable for 16x0, 0x16, 12x4, 4x12 or 8x8 operation**
- **Inputs configurable in groups of four channels for microphone or line-level input and line-level output**
- **GPIO port**
- **GPIO-25 DIN rail breakout panel for external control terminations**
- **Fan cooled 2U package with NION cosmetics**
- **Front panel audio metering**
- **Front panel network status and fault indicators**

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

CAB™ 8i

The CAB™ 8i is an eight-channel, input only, digitally controlled preamp using 24-bit analog-to-digital converters. Includes mic preamps with software-controllable 48V phantom power, mic/line selection and analog gain.

- Four 16-position front panel rotary switches for unit ID
- Advanced audio routing when integrated with MediaMatrix

- Universal power supply (100-240V 50-60Hz)
- Eight mic/line inputs
- Eight studio grade mic preamps
- Word clock for system redundancy "buddy link"
- 48V phantom power (switchable)
- Four 16-position front panel switches for unit ID
- Front panel level meter for each channel
- Supports RS-485 bridging
- Eight N/O-N/C relay (CAB 8 Series)
- Eight 5V TTL outputs (CAB 8 Series)

- Eight 0-10 VDC control voltage inputs (CAB 8 Series)
- 48kHz sample-rate
- 24-bit quantization 64x oversampling
- Digitally controlled analog microphone preamplifier
- Front panel level meter for each channel
- Mic/line 20dB switchable pad

CAB™ 16i

The CAB™ 16i is a 16-channel, line level, input only device using 24-bit analog-to-digital converters.

- Four 16-position front panel rotary switches for unit ID
- Word clock for system redundancy "buddy link"
- Advanced audio routing when integrated with MediaMatrix
- Universal power supply (100-240V 50-60Hz)

- Supports RS-485 bridging
- CobraNet protocol sampled at 48kHz
- A/D converters are 24-bit 64 times oversampling, using delta-sigma modulation
- 24-, 20-, or 16-bit transmission quantization at a 48kHz sampling rate
- Low noise/wide dynamic range 108dB typical
- A non-Ethernet RS-485 control port with two multi-drop connections
- 48kHz sample-rate

- Two word clock linking connectors that enable auto-switch-over to a second unit, should one unit fail
- 24-bit quantization 64x oversampling
- One rack-unit (1-3/4")
- Front panel level meter for each channel
- Fan-cooled chassis
- Sixteen channels of line-level audio transmitted onto an Ethernet network

Commercial Audio
http://commercial.peavey.com

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

CAB™ 16o

The CAB™ 16i and CAB™16o, respectively, are sixteen line-level input and output MediaMatrix® gateways onto and off of a 100baseT Ethernet network employing CobraNet® proprietary protocol to ensure seamless, error-free transmission of high-quality real-time audio without dropouts or lossy compression. The CAB 16o downloads and reconstructs audio data from the CobraNet Ethernet network 16 line-level channel outputs. Maximum output levels of +6, +12, +18, and +24 dBu and volume from zero to full-scale in 1/2 dB steps are software controllable through the MediaMatrix.

- Four 16-position front panel rotary switches for unit ID
- Eight 5V TTL outputs (CAB 8 Series)
- Eight N/O-N/C relay (CAB 8 Series)
- Supports RS-485 bridging
- Eight 0-10 VDC control voltage inputs (CAB 8 Series)
- Advanced audio routing when integrated with MediaMatrix
- Sixteen channels of line-level audio transmitted from an Ethernet network using CobraNet protocol sampled at 48 kHz
- D/A converters are 24-bit, 128 times oversampling, using delta-sigma modulation

- Low noise/wide dynamic range 110dB typical (CAB 16o).
- A non-Ethernet RS-485 control port with two multi-drop connections
- 48kHz sample-rate
- Two word clock linking connectors that enable auto-switch-over to a second unit, should one unit fail
- 24-bit quantization 64x oversampling
- One rack-unit (1-3/4")
- Front panel level meter for each channel
- Fan-cooled chassis
- Word clock for system redundancy "buddy link"

CAB™ 16d

The CAB™ 16d is a 16-channel input and 16-channel output device, which includes an RJ-45 100 BaseTX Ehternet port and an RS-485 port.

- Front panel level meter for each channel
- 48kHz sample-rate
- Supports RS-485 bridging
- Word clock for system redundancy "buddy link"
- Advanced audio routing when integrated with MediaMatrix

- 24-bit quantization 64x oversampling
- Four 16-position front panel rotary switches for unit ID
- Sixteen digital audio inputs and outputs
- AES3 and S/PDIF compatible
- Universal power supply (100-240V 50-60Hz)

Commercial Audio

http://commercial.peavey.com

cab 8n

MediaMatrix ®
Peavey Electronics Corporation

DESCRIPTION

The CAB 8n Configurable Audio Bridge is a professional digital audio processor intended for fixed installation applications. It provides eight audio channels and a GPIO interface in a compact enclosure. The device is designed for use with MediaMatrix NION networked DSP systems in professional and commercial audio and communications applications. The cost-effective, 1U-high, 1/2U-wide unit can be powered directly from the Ethernet network using Power-over-Ethernet, or from a DC power supply. Each of the eight audio channels can function either as an analog audio input to the CobraNet audio network, or as an analog audio output from the CobraNet audio network. Audio inputs accept microphone or line-level audio signals, with phantom power, and allow fine-grained remote control of input gain. Audio outputs provide line-level audio signals with fine-grained remote level control, relay mute, and direct monitoring of the analog output signal.

The CAB 8n features a wide range of control interfaces to third-party systems, including eight channels of configurable GPIO, each of which may be independently configured as logic input, logic output, high-current voltage output or analog control voltage input. The unit also features two dual-pole user-controllable contact-closure circuits, a fault indicator contact-closure circuit, and a user-controllable RS-232, EIA-485 and EIA-422 full-duplex serial port.

FEATURES

- 8 channels of quality balanced analog audio, independently selectable to be either mic/line input with phantom power, or line output

- Remote control of input mic/line mode, phantom power, input gain and output level

- 8 channels of GPIO, independently configurable as logic input, logic output, analog control voltage input or high-voltage output*

- May be powered from Power-over-Ethernet, or DC power supply (included)

- CobraNet audio networking interface with 5.33ms latency, 48kHz sample rate.

- Two user-controllable contact closure circuits

- Fault contact closure circuit and front-panel LED

- User-selectable RS-232/EIA-485/EIA-422 serial port, for interfacing to third-party systems

- High-current (1A) DC power output*

- All audio interface control and monitoring, audio metering, GPIO, contact closure, serial port data and hardware status remotely accessible via the Ethernet network from within MediaMatrix NWare software

- Compact 1/2U-wide, 1U high chassis

- Front panel LED audio level metering

- Front-panel LED network activity and power status indicators

- Concealed front-panel rotary controls for unit ID selection.

* High-voltage output GPIO mode and high-current power output not available when using Power-over-Ethernet.

Specifications

Front Panel

5-element LED audio level meter for each audio channel, indicating -48dB, -12dB, -6dB, 0dB and overload
Link LED indicates CobraNet connection status
Status/Data LED indicates Ethernet data activity
Fault LED
Power LED
Four rotary encoders behind panel (removable without tools) for setting unit ID on network, to identify it uniquely to control software

Rear Panel Connections

LAN: RJ-45 socket for CobraNet and control communications on 100Base-T Ethernet, and power via Power-over-Ethernet
Audio: 8 channels of balanced audio I/O with screen, each on 3-pin Mini Euro connector that may be independently selectable as input or output
GPIO: Mini Euro connector with 8 independent GPIO pins and 4 ground pins
Contact closure: Two user-controlled contact closure circuits and one fault indicator contact closure, each with normally-open and normally-closed connections, on three-pin Mini Euro connectors
Serial port: RS-232, EIA-485 and EIA-422 full-duplex serial port with screen, on five-pin Mini Euro connector
External power in: 24V DC 1.6A on two-pin Mini Euro connector
DC power output: 1A output at external power voltage, on two-pin Mini Euro connector

Digital Audio Performance

Audio channels: 8, each software configurable as input or output
Audio sample rate: 48kHz
Frequency response, inputs and outputs:
20 Hz – 20 kHz, +0/-0.3 dBr, referenced at 1kHz, unity gain
Input THD+N: 0.01% 10Hz – 22kHz measurement bandwidth, +4dBu signal with 20dB headroom
Input dynamic range: 110 dB, A-weight filter measure
Equivalent input noise: -126 dBu
Input CMRR: > 70 dB
Input gain control: -3 to +60 dB, 0.25dB steps, remote control
Maximum input level: +24 dBu
Input impedance, mic mode: 1.9kOhm
Input impedance, line mode: 8.4kOhm
Phantom power: 48V, software-selectable per input channel
Output THD+N: 0.006%, 10Hz – 22kHz measurement bandwidth, +4dBu signal with 20dB headroom
Output dynamic range: 110 dB
A-weight filter measure
Maximum output level: +18 dBu
Output level control: -96dBu to +22dBu full-scale, analog level control
Output impedance: < 60 Ohms

Notes:
All specifications are typical for any channel
All measurements are made with an AC line of 240V RMS at 50 Hz
All measurements are made using 600 Ohm balanced load unless otherwise stated
All measurements are made in the analog domain with gain/attenuation set for unity unless otherwise stated

CobraNet Performance

48 kHz sample rate, 5.33ms latency
Four transmit bundles, eight receive bundles

GPIO and Other Interfaces

8 GPIO ports: each independently software-configurable to be logic level input, logic level output, analog control voltage input, or high-voltage output
Logic level input mode: 3.3V high level (LVTTL) with reverse-voltage and transient protection
Logic level output mode: 3.3V high level (LVTTL)
Analog control voltage input mode: 10-bit resolution, 12V full-scale, reverse-voltage and transient protection
High voltage output mode: voltage as supplied by external DC power, current up to 1A on each GPIO port, subject to total power available from external DC power supply
2 user-controllable contact-closure circuits: max voltage 30V DC, max current 1A
1 fault indicator contact closure circuit: max voltage 30V DC, max current 1A
Serial port interface: selectable in software to be EIA-485 (half-duplex or full-duplex), EIA-422 or RS-232
High-current power output: voltage as supplied by external DC power, 1A current, subject to total power available from external DC power supply, additional ground pin

Mechanical Specifications

Chassis Style: 1RU high, 1/2RU wide EIA rack package with mounting lugs available for installing either one or two CAB 8n units in a 1RU space.
Dimensions: 9.5 in. (24.13cm) W x 14.5 in. (36.83cm) D x 1.75 in. (4.45cm) H

Architect's & Engineer's Specifications

Configurable Audio Bridge

The audio network interface shall be a 1RU-high, 1/2RU-wide industrial package designed for fixed installation in engineered audio and communication systems. It shall provide eight analog audio channels, each independently configurable as either a line-level analog output from the audio network, or a mic/line analog audio input to the audio network. The audio network shall be CobraNet, operating on a 100Base-T Ethernet physical interface. The audio output signals shall be monitored in the analog domain, and this monitoring signal shall be capable of transmission on the CobraNet network. The analog audio inputs shall provide 48V phantom powering for microphones, and remote control of gain. The audio outputs shall provide remote control of level in the analog domain, and mute by physical disconnection of audio signal drivers from the external connectors. The audio network interface shall be capable of being powered from Power-over-Ethernet according to standard IEEE802.3-2008, or from 24V DC. The audio network interface shall feature front-panel meters to indicate audio signal level on each channel, and status indicators for the network connection, power and system fault condition. The audio network interface shall provide eight general-purpose I/O connections, each independently configurable as either a logic input, logic output, analog control voltage input, or high-voltage output. The audio network interface shall provide a serial port, configurable to operate on either RS-232, EIA-485 or EIA-422 physical protocols. All connections except for the Ethernet port shall be on Mini Euro connectors. Remote control and monitoring via Ethernet shall be possible for all functions and settings, including audio input and output interface settings, audio level metering, CobraNet settings, GPIO configuration and signals, contact closure circuits and serial port configuration and data. A software device to control and monitor the audio network interface shall be available for integration into the configuration file. The audio network interface shall be the MediaMatrix Cab 8n or approved equal.

MediaMatrix®
Peavey Electronics Corporation

cab 4n

MediaMatrix ®
Peavey Electronics Corporation

DESCRIPTION

The CAB 4n is an audio breakout box designed to enhance the versatility of MediaMatrix NION audio systems. It is fitted with four module bays that support a variety of optional I/O modules. The unit will can be loaded with one, two, three or four modules to provide any combination of microphone, line and output connections, including 16x0, 0x16, 12x4, 4x12 and 8x8. Input channels can be managed in groups of four.

The CAB 4n features a versatile GPIO port, which provides analog, digital and dry contacts. All of the GPIO ports are configurable using the NWare™ software. A DIN rail mounting system, called the GPIO-25, is also available to give efficient rack wiring and service.

There are three variations of the unit, each fitted with a different audio networking module:

• CAB 4n CM-1 is a CobraNet model that features 8 and 9-bit serial bridging. This is required for legacy ControlMatrix projects.

• CAB 4n CM-2 is a CobraNet model that offers optional advanced CobraNet subchannel mapping.

• CAB 4n Dante interfaces with the Dante audio networking protocol through the use of Audinate's Dante Legacy Module (DLM).

FEATURES

• Scalable I/O architecture

• Supports all MediaMatrix 4-channel I/O modules

• Supports one, two, three, or four modules in any combination of mic in, line in, and output.

• Supports both CobraNet and Dante audio network modules

• Front panel level meter for each channel

• Front panel network status and fault indicators

• 48 kHz sample-rate

• 24-bit quantization, 64x oversampling

• Buddy Link redundancy system (CobraNet models only)

• GPIO port with 8 configurable GPIO pins

• 4 "Form C" relays with NO and NC connections, contacts rated for 1A

• GPIO-25 DIN rail breakout panel for external control terminations (available separately)

• Integrated CobraNet serial bridging for EIA-485 (CobraNet models only)

• Universal power supply (100-240V 47-63Hz) with removable IEC power cable.

Specifications

Front Panel

Hardware base address indicators / Audio meters: Before a CobraNet control connection has been established from a NION, base address (ID) is shown; afterwards, audio input/output levels are shown. With Dante, base address is shown at power up; afterwards, audio input/output levels are shown.

Hardware base address switches: 4-position rotary switches for setting hardware base address (ID). Located behind removable cover on the front of unit.

Fault LED: Indicates hardware fault or unexpected condition from the audio networking module.

Conduct LED: Indicates the CAB 4n is an active Conductor on the CobraNet network.

Link LED: Indicates that a physical layer connection has been established.

RX and TX LEDs: Indicate data reception and transmission via the audio networking module.

Power LED: Indicates that the CAB 4n is receiving power.

Rear Panel Connections

Mains power in: 100-240v 47-63 Hz 50W A/C. Accepts removable IEC power cable. AC line current: 450 mA (rms), power consumption: 32W, power dissipation: 108 BTU (27 kcal).

Buddy Link In & Out connector: BNC connectors to transmit link data to another CAB 4n as part of Buddy Link process (CobraNet models only).

Audio networking module bay: Supports audio networking modules with the Cirrus Logic CM-1 footprint. Currently supported modules are the Cirrus Logic CM-1, Cirrus Logic CM-2 and Audinate Dante Legacy Module (DLM).

A network connection via one of these modules to a supporting device is required to pass audio.

GPIO port: Female DB-25 connector with 8 configurable, general purpose ports (supporting digital I/O, analog I/O or rotary encoder), plus 4 relays.

EIA-485 ports: Two two-wire, half duplex EIA-485 removable Euro connectors. Each is internally wired to support busing of communicating hardware via a serial connection.

Audio connectors: Support for balanced, three-wire connections on removable Euro connectors. These are available on audio input and output cards. The cards are color-coded: MM-Line4 (four channel line input) - black, MM-Mic4 (four channel mic input) - green, MM-Out4 (four channel line output) - blue.

Digital Audio Performance

Frequency response: +0 / -0.3 dB, 20 ~ 20 kHz, referenced @ 1 kHz

THD + Noise line level: 0.006%, Mic Level: < 0.01%

Dynamic range: 106 dB

Equivalent input noise (EIN) mic level: < -126 dBu

Common mode rejection ratio: 55 dB

Crosstalk: 90 dB

Full-scale line level: +30, +24, +18, or +12 dBu

Input sensitivity settings mic level: -42 dBu at +63 dB gain

Full-scale output settings: +24, +18, +12, +6 dBu, Less than 0.5 dB error between settings

Analog gain range: line Level -95.5 dB to +30.5 dB, mic Level 0 to 63 dB

Input impedance line level: 9.5 k Ohms, mic Level: 4 k Ohms

Output Impedance: 102 ohms

Minimum Load Impedance: 600 ohms

Audio I/O: 16 inputs/outputs, line or mic level modular inputs, configurable in groups of four.

A/D, D/A Quantization: 24 bit

LED Metering: 16 peak-reading headroom LED meters. Zero LED indicates level <1 dB below full-scale.

CobraNet Performance

Audio transmission quantization: 20 or 24-bit.

Sample rate (Fs): 48 kHz.

Digital audio channels per unit: 16 inputs/outputs at 24-bit.

CobraNet I/O: Primary and secondary 100 BaseT Ethernet network connections using standard 8P8C "RJ45" modular jacks. Only a single connection required for audio networking.

Cable length: Ethernet standards apply.

Dante Performance

Audio transmission quantization: 24-bit.

Sample rate (Fs): 48 kHz.

Digital audio channels per unit: 16 inputs/outputs at 24-bit.

Dante I/O: Primary and secondary Gigabit Ethernet network connections using proprietary Dante protocol and standard 8P8C "RJ45" modular jacks. Only a single connection required for audio networking.

Cable length: Ethernet standards apply.

Mechanical Specifications

Dimensions: 19" (483mm) W x 16-3/8" (416mm) D x 3-1/2" (88mm) H.

Weight: 9.5 lbs (4.3 kg).

Mounting: Double EIA space rack mount (2U).

Architect's & Engineer's Specifications

Configurable Audio Bridge

The CAB 4n shall provide four card slots, each accepting one of the following cards: MM-Mic4 (4-channel microphone input), MM-Line4 (4-channel line input), or MM-Out4 (4-channel line output), providing up to 16 channels of analog audio transmitted via an Ethernet network, in any configuration of card combinations. It shall provide full-bandwidth, high-quality audio transmission via Ethernet without lossy compression techniques, drop-outs or signal degradation by employing either CobraNet or Dante audio transmission protocols. The specific audio performance characteristics are dependant upon the I/O cards loaded into the unit. Control features shall include four relays with both normally open and normally closed contacts, and eight channels of configurable GPIO pins. The GPIO pins may be configured as Digital Input (3.0V TTL logic - Low:0VDC-0.8VDC; High:2.0VDC-24VDC), Digital Output (3.0V TTL logic - Low:0VDC-0.4VDC; High:2.4VDC-3.3VDC), Analog Input (0-24VDC), or as part of a Rotary Encoder circuit (Requires 2 GPIO pins and a common +24VDC source). All GPIO functions are software controllable via an Ethernet link. All GPIO functions can control (or be controlled by) software parameters via an Ethernet link. Front-panel indicators shall display the following status conditions: signal transmission, signal reception, transmission error, reception error, fault indication, link indication, conductor status, and power presence. It shall have sixteen peak reading headroom meters to monitor the analog level present at the I/O cards with the top-most red LED indicating A/D (or D/A) clipping. Rear panel features shall include a detachable AC power cord, an AC power switch, and an AC power receptacle with a built-in auto-resetting circuit breaker. External or internal fuses shall not be acceptable. It shall have two word-clock connectors that, when used with CobraNet, enable auto-switchover to a redundant unit. It shall employ detachable, euro-style, bare-wire capturing, screw-terminal connectors for ease of hook-up and troubleshooting. These connectors shall be used for all line-level, microphone-level, and EIA-485 connections. It shall employ a DB-25 connector for control voltage, TTL, relay, and fault relay connections. The unit shall use a standard eight-conductor RJ-45 I/O jack for Ethernet connection. Its dimensions shall be 19 inches (483 mm) wide, 16 3/8 inches (416 mm) deep, and 3 1/2 inches (88 mm) high without feet. Its net weight shall be 9.5 pounds (4.3 kg.), and its 2 rack-unit (3 1/2"), fan-cooled, steel chassis, shall be finished in black powder coat and silver trim bezel to match the styling cues of the MediaMatrix NION series Digital Signal Processors. It shall consume no more than 32 Watts of power and draw no more than 0.45 amps of current while dissipating no more than 108 BTUs of heat. It shall be supplied with a detachable AC cable. It shall be UL, CUL, and CE listed and comply with FCC part 15, A. The unit shall be Peavey Electronics Corporation model CAB 4n.

MediaMatrix ®
Peavey Electronics Corporation

MediaMatrix®
CAB™ 16i and
CAB™ 16o

Description

The CAB™ 16i and CAB™16o, respectively, are sixteen line-level input and output MediaMatrix® gateways onto and off of a 100baseT Ethernet network employing CobraNet™ proprietary protocol to ensure seamless, error-free transmission of high-quality real-time audio without dropouts or lossy compression.

The CAB 16i digitizes line-level inputs and uploads audio data onto the Cobranet Ethernet network. Each CAB 16i channel has software controlled, continuously variable analog input gain in 1/2 dB steps. Up to 30 dB of input padding is available for each channel. Both are software controllable through the MediaMatrix.

The CAB 16o downloads and reconstructs audio data from the Cobranet Ethernet network 16 line-level channel outputs. Maximum output levels of +6, +12, +18, and +24 dBu and volume from zero to full-scale in 1/2 dB steps are software controllable through the MediaMatrix.

In addition to the input or output audio paths, both products incorporate an RS-485 port and two word-clock linking BNC connectors.

Features

• Sixteen channels of line-level audio transmitted onto an Ethernet network using CobraNet protocol sampled at 48 kHz (CAB 16i).

• Sixteen channels of line-level audio transmitted from an Ethernet network using CobraNet protocol sampled at 48 kHz (CAB 16o).

• A/D converters are 24-bit 64 times oversampling, using delta-sigma modulation (CAB 16i).

• D/A converters are 24-bit, 128 times oversampling, using delta-sigma modulation (CAB 16o).

• 24, 20, or 16-bit transmission quantization at a 48 kHz sampling rate.

• Low noise/wide dynamic range 108 dB typical (CAB 16i).

• Low noise/wide dynamic range 110 dB typical (CAB 16o).

• A non-Ethernet RS-485 control port with two multi-drop connections.

• Two word clock linking connectors that enable auto-switch-over to a second unit, should one unit fail.

• One rack-unit (1-3/4"), fan-cooled chassis.

Applications

• Stadiums
• Cruise ships
• Multi-purpose facilities
• Auditoriums
• Large-scale paging systems
• Schools
• Courts of law
• University campus buildings
• Theme parks
• Performing arts centers
• Distance learning
• Hotel meeting rooms
• Houses of worship
• Conference centers
• Teleconferencing
• Civic Centers
• Music clubs
• Theaters
• Arenas
• Critical listening/recording - high end audio
• Any facility requiring distribution of multiple line-level signals

PEAVEY
ARCHITECTURAL ACOUSTICS®

MM™ BREAK-OUT BOXES

MM™ 8802

The MM™-8802 breakout box provides simple, efficient and cost-effective I/O expansion for all classic MediaMatrix products. With modular input bays and support for external control support, the MM-8802 includes front panel metering, 24-bit A/D converters and balanced line-level outputs. Connectivity is robust with MediaMatrix RJ type TX/RX interface to support Mainframe™, Miniframe™ and X-Frame™ 88 products.

- **Eight line-level analog inputs or optional mic inputs in four channel groups.**
- **Eight line-level analog outputs**
- **24-bit quantization 64x over-sampling AD/DA converters**
- **Software selectable 32 kHz, 44.1 kHz or 48 kHz sampling rate**
- **Eight 0-10 V analog control voltage inputs**
- **Eight 5 V TTL logic outputs**

- **Fault annunciation via front panel LED and rear contact closure**
- **Software-selectable analog and digital input sensitivity/output drive**
- **Supports RJ type and legacy "BoB cable" termination schemes**
- **Single-rack-space**
- **Forced-air-cooled package**

Input/Output Card Options

MM™-Line 4
- **Four channels of low impedance, balanced analog inputs**
- **Software controllable analog gain**
- **Up to two can be used in X-Frame 88 or MM-8802**
- **Can be mixed with MM-Mic 4 (four line / four mic)**
- **Up to four can be used in CAB 4n**

MM™-Mic 4
- **Four channels of electronically balanced microphone inputs**
- **Each channel has software-controlled 48 Volts phantom power**
- **Each channel has software-controlled analog gain**
- **Up to two can be used in X-Frame 88 or MM-8802**
- **Can be mixed with MM-Line 4 (four mic / four line)**
- **Up to four can be used in CAB 4n**

MM™-OUT 4 (CAB 4n only)
- **Four line level outputs**
- **Support for only the CAB 4n**
- **Up to four can be used in a CAB 4n**

16XT™ AES3
Companion Break-Out Box

- **AES/EBU standards compliant**
- **Converts MM-DSP-AES DB37 cable to AES3 breakout for convenient wiring**
- **I/O transformer**

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

X™ -Frame

X-Frame™ 88 with 8 Line Inputs & 8 Line Outputs

Perhaps the most amazing of all DSP systems currently available, the classic X-Frame 88 is the industry's best DSP value. At the core of the X-Frame 88 is the same digital processing unit made famous by the frame-based MediaMatrix® systems. The X-Frame 88 comes packaged with X-Ware™, a "light" version of the classic MediaMatrix software. One of the most specified DSP systems in existence, the X-Frame™ 88 is perfect for smaller applications or as a supplement to larger frame based systems. Complete with onboard I/O, the X-Frame 88 includes eight mic or line inputs, eight outputs, four control logic ports, and an RS-485 data port. The popular MM-8802 Break-out Box extends the I/O of the X-Frame 88 up to 24x24.

- • **Eight line inputs**
- • **Four control logic ports**
- • **One RS-485 data port**
- • **Digital parallel processing system utilizing four**

Motorola 80 MHz 56002 DSPs
- • **Eight outputs**
- • **Compatible with up to two MM-8802 Break-out Boxs**
- • **Includes X-Ware™ design software**
- • **Universal power supply included**
- • **Requires two input cards.**
- • **One rack space**
- • **Expandable to 24 X 24 I/O**

X-Frame™ 88 with 4 Mic/4 Line Inputs & 8 Line Outputs

Perhaps the most amazing of all DSP systems currently available, the classic X-Frame™ 88 is the industry's best DSP value. At the core of the X-Frame 88 is the same digital processing unit made famous by the frame-based MediaMatrix® systems. The X-Frame 88 comes packaged with X-Ware™, a "light" version of the classic MediaMatrix software. One of the most specified DSP systems in existence, the X-Frame™ 88 is perfect for smaller applications or as a supplement to larger frame based systems. Complete with onboard I/O, the X-Frame 88 includes eight mic or line inputs, eight outputs, four control logic ports, and an RS-485 data port. The popular MM-8802 Break-out Box extends the I/O of the X-Frame 88 up to 24x24.

- • **Four microphone inputs**
- • **Four line inputs**
- • **Eight line outputs**
- • **Four control logic ports**

- • **One RS-485 data port**
- • **Digital parallel processing system utilizing four Motorola® 80 MHz 56002 DSPs**
- • **Compatible with up to two MM-8802 Break-out Boxs**
- • **Includes XWare™ design software**
- • **Universal power supply included**
- • **Requires two input cards**
- • **One rack space**
- • **Expandable to 24 X 24 I/O**

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

X-Frame™ 88

X-Frame™ 88 with 8 Mic Inputs & 8 Line Outputs

The classic MediaMatrix X-Frame™ 88 is the industry's best DSP value. At the core of the X-Frame 88 is the same digital processing unit made famous by the frame-based MediaMatrix® systems. The X-Frame 88 comes packaged with XWare™, a "light" version of the classic MediaMatrix software. One of the most specified DSP systems in existence, the X-Frame™ 88 is perfect for smaller applications or as a supplement to larger frame based systems. Complete with onboard I/O, the X-Frame 88 includes eight mic or line inputs, eight outputs, four control logic ports, and an RS-485 data port. The popular MM-8802 break-out box extends the I/O of the X-Frame 88 up to 24x24.

- **Eight microphone inputs**
- **Four control logic ports**
- **One RS-485 data port**

- **Digital parallel processing system utilizing four Motorola® 80MHz 56002 DSPs**
- **Eight line outputs**
- **Compatible with up to two MM-8802 break-out boxes**
- **Includes XWare design software**
- **Universal power supply included**
- **Requires two input cards**
- **One rack space**
- **Expandable to 24 X 24 I/O**

MM™ Cards

MM™ Line 4

The MM™ Line 4 is a four-channel input/output card for use in the X-Frame™ 88, MM™-8802, and the CAB™ 4n.

- Four channels of low impedance, balanced analog inputs
- Software controllable analog gain
- Up to two can be used in X-Frame 88 or MM-8802
- Can be mixed with MM Mic 4 (four line/four mic)
- Up to four can be used in CAB 4n

MM™ Mic 4

The MM™ Mic 4 module provides four channels of electronically balanced microphone inputs to the X-Frame™ 88, MM™-8802, or the CAB™ 4n.

- Four channels of electronically balanced microphone inputs
- Each channel has software-controlled 48 Volts phantom power
- Each channel has software-controlled analog gain
- Up to two can be used in X-Frame 88 or MM-8802
- Can be mixed with MM Line 4 (four

MM™ Out 4

The MM™ Out 4 card provides four channels of low-impedance, balanced, line-level audio outputs for the CAB™ 4n.

- Four line level outputs
- Support for the CAB 4n only
- Up to four can be used in a CAB 4n

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MediaMatrix®

CONTROL PROCESSORS

nControl™

MediaMatrix® nControl™ is an auxiliary processing system that provides expanded control processing and additional, extensive Python scripting capabilities for the NION® platform. With the nControl™, users can monitor the operation and health of all devices on a network via SNMP. Devices with serial ports connect to the nControl either directly or through a supported network serial server for control and management. The nControl™ supports I/O cards that allow it to act as a media server, including audio recording and playback over CobraNet®. An FTP interface allows for transferring audio files across the network to the nControl

for recording and playback without requiring a project to be deployed. Additional internal cards and network-connected devices are available to expand the GPIO and serial functionality, allowing for custom, application-specific system configuration. The GPIO expansion enables the use of TTL logic, switches, LEDs and other custom circuitry for additional control-driven functions. Support for RS-232, EIA-485, and EIA-422 serial interfaces are available.

• **Rackmountable, 3RU package**
• **Record audio via CobraNet**

• **Playback audio via CobraNet**
• **Monitoring and control of devices on a network**
• **Expandable GPIO for specific applications**
• **Support for serial interfaces**
• **Intel® Pentium E2160 Dual Core 1.8GHz processor**
• **Two 250 GB 7200 RPM SATA-300 drives configured as RAID 1 array**
• **Gigabit Ethernet ports: 2 standard and expandable to 10 ports total**

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WALL & CONTROL PANELS

nWall™ Series — nWall 2.0   nWall 0.2   nWall 1.1

The MediaMatrix® nWall™ Series is a family of surface-mount audio interface panels that enable high-quality analog-to-digital and digital-to-analog audio conversion and CobraNet® transport for MediaMatrix.

The nWall 2.0 offers high-quality analog-to-digital audio conversion and transport for MediaMatrix, the most flexible and capable audio networking system and the pioneer of computer-based audio processing and control interfacing systems. By converting two balanced XLR inputs and two 1/8" inputs into a digital audio stream at the panel, the nWall 2.0 greatly reduces buzz, hum, ground loops and other cable issues, eliminates the need for isolation and impedance matching interfaces, and replaces long analog cable runs with a single CAT5e UTP cable.

The nWall 2.0 interface panel fits in a standard two-gang NEMA back box, and is powered over the attached network cable from a PoE-capable network switch that conforms to IEEE 802.3af. The XLR connectors can be configured for multiple audio input

sensitivities from -56, -26 to +4dBu, selected from a rotary switch located on the unit's front panel. The XLR inputs support electret condenser and dynamic microphones plus line-level audio with 15V DC phantom power. The 1/8" (3.5mm) TRS mini jacks accept a nominal -8dBU signal that is summed to mono and mixed with the XLR inputs.

The nWall 1.1 features an XLR connector that can be configured for multiple audio input sensitivities from -56, -26 to +4dBu, selectable via rotary switch on the unit's front panel. The XLR input supports electret condenser and dynamic microphones plus line-level audio with 15V DC phantom power. In addition, a 1/8" (3.5mm) TRS mini jack accepts a nominal -8dBU signal that is summed to mono and mixed with the XLR input. By converting a balanced XLR input and a 1/8" input into a digital audio stream at the panel, the nWall 1.1 greatly reduces buzz, hum, ground loops and other cable issues, eliminates the need for isolation and impedance matching interfaces, and re-

places long analog cable runs with a single CAT5e UTP cable.

The nWall 1.1 also provides one line-level output, via a balanced XLR connector or a 1/8" TRS mini jack output. The line output level can be adjusted with a three-position rotary switch on the face of the nWall 1.1 panel.

The nWall 0.2 features two balanced analog outputs converted from a single CobraNet network connection. The nWall 0.2 provides one XLR connector and one 1/8" TRS mini jack connector for each output. The level of each output may be adjusted with a three-position rotary switch associated with each output on the face of nWall 0.2 panel.

Any number of nWall panels can be patched to any number of MediaMatrix NION® processing nodes on the fly, eliminating the need for expensive patch panels and greatly reducing setup time between events.

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nWall

Audio Network In Wall Interface Panel   **Data Sheet**

DESCRIPTION

The MediaMatrix nWall is a surface mount CobraNet interface panel with two analog microphone/line level input channels. The device converts audio from the input channels to a CobraNet audio stream. It can then be routed via CobraNet bundle transmitters over a local area switched network using CAT5e UTP cable.

The nWall eliminates the need for long runs of analog microphone cables terminated in racks of patch bays as typically seen in ballrooms and convention centers. As the connection to the nWall uses CAT5e UTP cable with network standard RJ45 crimp connectors, the installation time, number of terminations required and associated cost are all minimized. A MediaMatrix nWall CobraNet interface panel fits within a standard 2 gang NEMA back box and is powered over the attached network cable from a network PoE capable switch that conforms to IEEE 802.3af. The XLR connectors can be configured for multiple audio input sensitivities (-56dBu, -26dBu and +4dBu) using a rotary switch on the front panel. Electret condenser and dynamic microphones are supported, plus line level audio with 15V DC phantom power assigned to the XLR inputs. The 1/8th inch (3.5mm) TRS mini jacks accept a nominal -8dBu signal that is summed to mono and mixed with the XLR inputs.

FEATURES & BENEFITS

- 2 balanced XLR inputs - mic/line selectable gain via front panel 3 step rotary switch allows quick source setup at the wall panel. XLR connector is latchless to minimize mechanical damage to the interface panel.

- 2 unbalanced TRS 1/8th inch (3.5mm) mini jack inputs - summed mono for PC and Aux consumer line level audio products support off the shelf consumer audio cables.

- CobraNet audio transport - via switched network and RJ45 crimp connectors greatly reduces critical path delivery time and costs, replacing the need for skilled labor required to solder/terminate typical analog interface panels.

- Electronic patching - using MediaMatrix NWare any number of nWall panels can be patched on the fly to any number of NIONs, eliminating the need for expensive patch panels and greatly reducing setup time between events.

- Analog to digital - conversion at the wall panel reduces problems with buzz, hum, ground loops and other cable issues. It also eliminates the need for isolation and impedance matching interfaces.

APPLICATIONS

- Civic & convention centers

- Hotel ballroom, function and meeting rooms

- Stadiums, arenas, performing arts centers

- Schools, universities

- Auditoriums & theaters

- Paging systems

- Airports

- Mass rapid transportation systems

- Theme parks

- Houses of worship

- Teleconferencing

- Cruise ships & tour boats

- Medical centers / hospitals

NOTE: The nWall can only be powered via an IEEE 802.3af PoE compliant network switch. This must provide up to 15.4W of DC power (minimum 44V DC and 350mA) from each individual port over CAT5e UTP cable. Although any 802.3 compliant network switch should work with CobraNet, less expensive switches cannot operate at wire speed or have limited queue buffer sizes and can cause problems when a large amount of network traffic is present.

Specifications

Front Panel Connections

2 x balanced XLR3 (F) inputs (latchless).

Rotary (3 step) switch supports each adjacent XLR. Selectable gain attenuation: -56dBu / -26dBu / +4dBu (nominal) with +20dBu (peak) headroom for each setting.

2 x unbalanced TRS (F) 1/8th inch mini jack inputs summed to mono then mixed with XLR, -8dBu (nominal) +12 dBu (peak).

2 x blank label boxes for custom labeling of each input channel.

Rear Panel Connections

LAN: RJ-45 socket for CobraNet and control communications on 100Base-T Ethernet. Requires Power-over-Ethernet (PoE) via an IEEE 802.3af capable network switch.

Digital Audio Performance

Frequency response: +/- 1dB 20Hz to 20kHz nominal level

THD+noise: Less than 0.1% 20Hz to 20kHz nominal level

Hum & Noise / EIN, 150 Ω: -126 dBm at max gain, 20Hz - 20kHz

Dynamic Range: 98 dB (gain min)

CMRR: 65 dB

Nominal Input Sensitivity / Max Input Level

XLR connectors:
Position 1 +4dBu / +24dBu
Position 2 -26dBu / -6dBu
Position 3 -56dBu / -36dBu
(Impedance mic = 2.0 kOhm)

TRS connectors:
-8dBu / +12dBu
(Impedance line = 10.0 kOhm)

Phantom Power:
+15V DC (DIN 45 596 or IEC 268-15A)
(Allocated to XLR inputs)

CobraNet Performance

2 audio sub channels at 48 kHz sample rate, 5.33ms latency to CobraNet transmit bundles.

System Configuration

Audio interface panel IP settings, CobraNet bundle settings and sub channel mapping assignments remotely accessible via Ethernet network from within MediaMatrix NWare software and CobraNet Discovery Utility software.

Power / Data requirements & connection

Requires IEEE 802.3af PoE compliant network switch that provides up to 15.4 W of DC power (minimum 44V DC and 350 mA) from each individual port over CAT5e UTP cable.

Power over Ethernet (PoE):
Consumption = 350 mA (Max)

Mechanical Specification

Dimensions: 4.57" (116mm) W x 2.0" (51mm) D x 4.5" (114mm) H
Net Weight: 1.54 lb. (0.70 kg)
Mounting: NEMA 2-gang finish plate, requires 2.25" clearance depth minimum. Mount in metal box coupled to EMT conduit.

NOTE: Take care to ensure that back box and conduit coupling hardware, wire or other terminating devices do not obstruct the installation of the nWall circuit assembly.

Finish

Grey powder coat on 18 gauge CRS.

Architect's & Engineer's Specifications

Audio Network In Wall Interface Panel

The audio network interface panel shall be an in wall surface mount panel housed within a NEMA 2-gang back box designed for fixed installation in engineered audio and communication systems. It shall provide up to 4 input analog audio channels supporting both microphone and line level balanced and unbalanced line audio sources with input attenuation being selectable from rotary switches located on the front panel. The balanced analog audio inputs shall provide for 15V DC phantom powering for microphones. The audio network interface shall be powered from Power-over-Ethernet according to standard IEEE802.3af. The audio interface panel shall be a 2 channel device, where internal circuitry shall mix and sum mono the TRS mini jack and XLR inputs for each channel allowing for the audio inputs to be transmitted over an audio network. The audio network shall be CobraNet™, operating on a 100Base-T Ethernet physical interface. The network interface panel Ethernet port shall be side mounted to ensure connected network cable has sufficient bend radius. Remote set up and control via Ethernet shall be possible for CobraNet settings. A software device to control the audio network interface panel shall be available for integration into the NWare configuration file. The audio network interface panel shall be the MediaMatrix nWall or approved equal.

MediaMatrix®
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MediaMatrix®

WALL & CONTROL PANELS

nTouch™ 60

The nTouch™ 60 is a touch-screen inter-active controller designed for remotely controlling audio systems designed in Me-diaMatrix® NWare™ for the NION® platform. The nTouch 60 features a full-color, resistive OLED touch-screen panel with high-quali-ty graphics that measures approximately 2.4" (60 mm) diagonally, and displays and controls projects hosted on a MediaMatrix NION or nControl™ processor.

Based on an Intel Atom N270 CPU, the nTouch 60 controller runs an embedded version of NWare Kiosk software for NION, the control arm of NWare system design software. System designers can program the nTouch 60 in NWare and then control an audio project designed in NWare from a remote location. Once the nTouch 60 is pro-grammed, it runs independently of external computers and communicates directly with the nControl or NION processor over Ether-net or an EIA-485 network. The nTouch 60 mounts via standard NEMA 1-gang box.

- **Touch-screen user interface**
- **60 mm formats**
- **Operate screens by hand or stylus**
- **Runs NWare Kiosk software for control of projects created in NWare**
- **nTouch 60 mounts via standard NEMA 1-gang mount**
- **Easy connection and installation**
- **Low power requirements**

xControl® LCD

The new xControl® device from MediaMa-trix® is the xControl LCD. Designed to direct-ly replace the xControl 4x4 as a two gang NEMA device, the xControl LCD utilizes ca-pacitive touch buttons and an LCD display for the user interface. Communications are handled by the same EIA-485 X-Net as is found on the xControl 4x4. This allows many controllers to be daisy chained on a single line.

- **Capacitive touch buttons**
- **LCD Display**
- **Simple drop in replacement for xControl 4x4**
- **Standard EIA-485 communications**
- **Daisy-chain connections**
- **Water-resistant face**
- **Easy connection and installation**
- **Buit in Data Terminiation switch**
- **Low power requirements**

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The World's Most Powerful DSP-Based Audio Tool

WALL & CONTROL PANELS

nTouch™ 180

The nTouch™ 180 is a touch-screen controller for use with MediaMatrix® NION® and nControl™ products. It features a 180mm (7") screen with a resistive touch overlay, allowing stylus or finger operation. The nTouch 180 utilizes an embedded version of the NWare Kiosk software. This means that anything that can be designed with NWare can be controlled by the nTouch 180. There are three mounting options available for surface, rack, and in-wall mounting (available separately).

- **Touch-screen user interface**
- **180mm (7") screen**
- **Operates by finger or stylus**
- **Runs NWare Kiosk software for control of projects created in NWare**
- **Utilizes a standard VESA 75 mount**
- **Easy connection and installation via standard Ethernet network and 12VDC power (power adapter included)**
- **Surface, Rack, and In-wall mounting available as a separate option**

XControl™ 4x4

The XControl™ 4x4 is a standard NEMA 2G flush-mount panel with programmable controls for use with MediaMatrix® audio processing products. The 4x4 can be configured to be anything from a simple volume control to a full-featured control panel for message playback, paging management or even as separate frequency levels for multiple equalization filters. Changing the configuration is easy and installation couldn't be simpler, thanks to the XControl™ RS-485 network and flexible power options. The 4x4 makes user control for MediaMatrix systems intuitive and flexible.

- **Up to eight panels on a single X-Frame™ 88**
- **RS-485 multi-drop network**
- **Easy wiring & installation**

- **Configurable controls**
- **Four programmable "virtual" knob controls with visual position and function status LEDs**
- **Up to 32 on NION® & Frame-based MM Series MediaMatrix systems**
- **Buttons can be programmed for trigger or mutally exclusive switch operation**
- **Includes five #6 spade lugs, terminating resistor, and manual**
- **Requires an external 12V DC power supply (not included).**
- **Compatible with the X-Frame™ 88, all NIONs, and all Miniframes and Mainframes with the use of an RS-232 converter (not inlcuded).**
- **Quantity discounts are available**
- **Separate button section features four programmable momentary buttons with status LEDs**

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MediaMatrix® The World's Most Powerful DSP-Based Audio Tool

WALL & CONTROL PANELS

XControl™ 4L

The XControl™ 4L is a standard NEMA 1G flush-mount panel with programmable controls for use with MediaMatrix® audio processing products. The 4L can be configured for a large variety of uses. From basic control over audio levels to multiple channels of equalization control, the 4L is a perfect companion. Like the 4x4, the 4L's rotary controls can be tracked across multiple locations. Creating control across large installations has never been easier. Add the logic functionality of NWare™ and MWare™ to the mix and the sky is the limit.

• Up to eight panels on a single X-Frame™ 88
• Tracking controls for multiple locations
• Bus or local power supply options
• Low power requirements
• Four programmable "virtual" knob controls with visual postion and function status LEDs
• Addressable

• Programmable functions
• One-gang NEMA mount
• Rotary control assignable to four functions
• LEDs indicate button function
• Label space for customization
• Flexible
• Requires an external 12V DC power supply (not included).
• Attractive cosmetic packages
• Compatible with the X-Frame™ 88, all NIONs, and all Miniframes and Mainframes with the use of an RS-232 converter (not inlcuded).
• Configurable controls
• Quantity discounts are available
• Easy wiring & installation
• RS-485 multi-drop network
• Up to 32 on NION® & Frame-based MM Series MediaMatrix systems
• Includes five #6 spade lugs, terminating resistor, and manual

XControl™ 4S

The 4S can be configured for a large variety of uses. A simple music select panel, control for message playback or scene recall for use with MediaMatrix's powerful preset functionality are just a few of the possibilities. Combine multiple 4S panels in a single installation for even greater preset control, or mix and match with the 4L to create even more flexible control options.

• Up to eight panels on a single X-Frame™ 88
• Four programmable momentary buttons with status LEDs
• Buttons can be programmed for trigger or switch operation
• Includes five #6 spade lugs, terminating resistor, and manual
• Low power requirements
• One-gang NEMA mount

• Four pushbuttons assignable to four functions
• Configurable for trigger or switch operation
• LEDs indicate button function
• Label space for customization
• Bus or local power supply options
• Requires an external 12V DC power supply (not included).
• Tracking controls for multiple locations
• Compatible with the X-Frame 88, all NIONs, and all Miniframes and Mainframes with the use of an RS-232 converter (not inlcuded).
• Configurable controls
• Quantity discounts are available
• Easy wiring & installation
• RS-485 multi-drop network
• Up to 32 on NION® & Frame-based MM Series MediaMatrix systems

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nTouch 60

MediaMatrix®
Peavey Electronics Corporation

Touch Screen Panel

Data Sheet

DESCRIPTION

MediaMatrix nTouch 60 is a touch screen control panel for controlling MediaMatrix audio systems designed in NWare.

The unit has a touch-sensitive screen that measures 60 mm (2.4") diagonally. This is used for navigating menus and selecting different options from an NWare project. The control knob below the screen allows you to easily make adjustments to settings, like volume or tone, for example.

The unit works in conjunction with an nControl or nTouch 180, which runs NWare Kiosk software. The images displayed by Kiosk are transferred over to the nTouch 60 for display on its screen. When the user interacts with the nTouch 60, control messages are sent back to Kiosk to update settings in the project and request new screens.

The convenience of the touch screen allows users to interact with projects without the need for a mouse or keyboard. The nTouch 60 case uses standard NEMA mounting.

FEATURES

- Touch screen user interface

- Touch-sensitive, rotary control knob for fine adjustment of settings

- Finger or stylus can be used to interact with applications

- Managed from within NWare

- Easy connection and installation

- 1-gang NEMA mount (fits US, UK, European and Australian NEMA wall boxes)

- Power over Ethernet (PoE) or local power supply options

- Low power requirements

- Cost effective.

Specifications

Front of Unit

Screen: 60mm (2.4") analog resistive touch screen.
Resolution: 320x240.
LCD color: Full color (262K colors).
Contrast ratio: 10000:1.
Can be operated with finger or stylus.
Control knob: Rotary encoder with endless action. Configured to wake unit from sleep mode when touched. Behind knob are holes for fixing unit to wall mounting bracket.

Rear of Unit

Power connector: Connector socket for DC power. Unit uses 12-48V @ 0.5A. Consumption 4W max.
Ethernet port: Standard Ethernet port. Supports Power over Ethernet (PoE).
Set up button: Switches the device into set up mode so that network configuration settings can be specified.

NEMA fixing plate holes: Two mounting holes for connecting to a wall mounting bracket.

CPU Specification

Processor: ARM Cortex M3 based micro controller.

Mechanical Specifications

Chassis Style: Metal case for mounting onto NEMA enclosure.
Dimensions: 100mm (3.94in.) W x 20mm (0.79in.) D x 135mm (5.31in.) H.

Environment

Operating temperature: 0° to +60°C.
Operating humidity: Up to 100%, non-condensing.

Architect's & Engineer's Specifications

Touch Screen Panel

The Touch Screen Panel shall be a 60mm (2.4") resistive touch screen designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an ARM Cortex M3 based microcontroller. The unit shall include a rotary encoder on the front to allow the user to interact with screens displayed on the front panel. When the rotary encoder has not been touched for a set period of time, the unit shall switch to sleep mode and the display shall be dimmed. In normal operation the unit shall display screens generated in NWare:Kiosk and transferred to the unit from an nControl or nTouch 180. The unit shall be configurable via set up screens displayed on the front panel. Support shall be provided for standard Ethernet management via an integrated, rear panel LAN port. The unit shall be powered using a DC power supply or using Power over Ethernet. The Touch Screen Panel shall allow software to be copied over to the unit and installed via the Ethernet connection. The Touch Screen Panel shall allow for a standard NEMA mounting configuration via mounting holes on the rear. The Touch Screen Panel shall be the nTouch 60 or approved equal.

MediaMatrix
Peavey Electronics Corporation

xControl LCD

MediaMatrix®
Peavey Electronics Corporation

Programmable control panel   **Data Sheet**

DESCRIPTION

The xControl® LCD is a programmable control panel designed for use with MediaMatrix audio processing products.
It is designed to operate as a simple source selection and volume control system for a room. It works in conjunction with an xControl device in an NWare project. It has capacitive touch buttons and a water resistant face. It is a two gang NEMA device, like the XControl 4x4, and uses the same EIA-485 X-Net communications system, allowing multiple units to be daisy-chained on a single line.

FEATURES

- Capacitive touch buttons
- LCD display
- Standard EIA-485 communications
- Water-resistant face
- Easy connection and installation
- Supports daisy-chaining
- Up to 31 xControl LCDs can be used with a single NION
- Can share the EIA-485 network with other XControl devices (XControl 4x4, for example)
- Built in data termination switch
- Configurable controls
- Bus or local power supply options
- Low power requirements
- Cost effective

APPLICATIONS

- Stadiums, theatres and arenas
- Cruise ships & tour boats
- Multi-purpose facilities
- Auditoriums
- Paging systems
- Schools & universities
- Courts of law
- Airports
- Theme parks
- Performing arts centers
- Hotel meeting room complexes
- Houses of worship
- Conference centers
- Teleconferencing systems
- Civic centers

Specifications

Front Panel

Buttons: Source, Level, Zone, Mute and Enter capacitive selector buttons.
Screen: 60mm x 32mm (2.36" x 1.26") LCD color: white on blue background, resolution: (128x64), contrast ratio: (3:1).

Mechanical

NEMA 2-gang finish plate, requires 57.2mm (2.25") clearance depth minimum.
Mount in metal box coupled to EMT conduit.

NOTE: Take care to ensure that conduit coupling hardware, wire or other terminating devices do not obstruct the installation of the circuit assembly.

Power requirements & connection:

12VDC and EIA-485 data via RJ-45 connector. 30mA per unit. One NION can supply power to up to 15 xControl LCDs.

NOTE: Use only unshielded, twisted pair cabling for EIA-485 network (CAT5-CAT6E). Maximum cable length for network circuit is 914m (3,000 ft.) under optimal conditions.

NOTE: The xControl LCD is not an Ethernet device and therefore cannot be powered using PoE.

Daisy-chaining supported. Termination via rear-panel switch.

NOTE: A maximum of 32 devices can be used on a single EIA-485 network. This includes devices of all types, i.e. xControl LCDs, NIONs, hubs, and so on.

Finish:

Light gray plastic.

Net Weight:

0.155kg (0.34lbs).

Mechanical
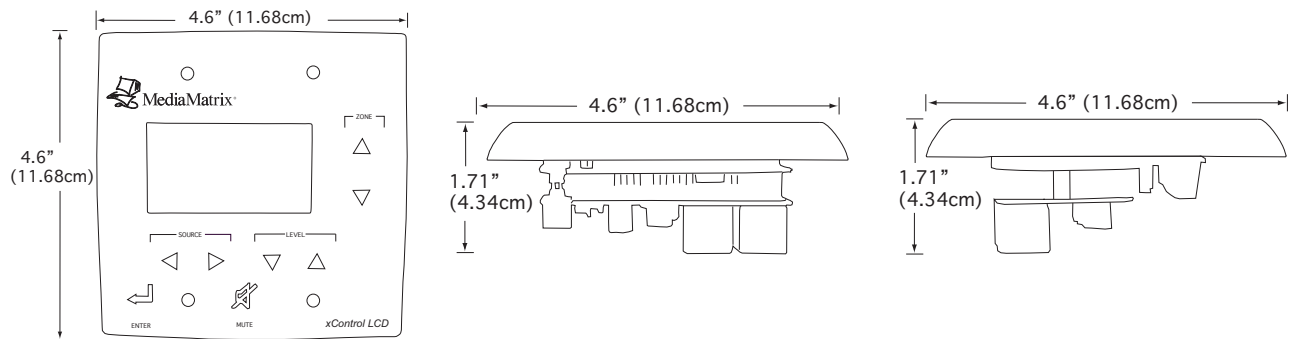
Architect's & Engineer's Specifications

xControl LCD

The controller shall provide control of functions in a project designed using NWare. The controller shall be designed for mounting in a standard NEMA 2-gang, deep metal enclosure and shall include an unobtrusive light gray finish. The controller shall include two zone selector buttons, two source selector buttons, two level selector buttons, one enter button and one mute button, all configurable as "virtual" encoders via software. An LCD screen that displays the available configuration options shall be included. The base code of the controller shall be programmable via the front panel. The controller shall be powered via an RJ-45 connector at the rear, which is connected to a NION via the EIA-485 port. The controller firmware shall be upgradable from software or from a direct replacement of the firmware chip. The controller shall be the Peavey MediaMatrix® xControl LCD.

MediaMatrix®
Peavey Electronics Corporation

nTouch 180

MediaMatrix ®
Peavey Electronics Corporation

DESCRIPTION

MediaMatrix nTouch 180 is a touch screen control panel for controlling MediaMatrix systems. nTouch 180 runs NWare Kiosk software that allows the user to control a project designed in NWare. It works in conjunction with a NION or an nControl, which hosts the project and media files.

The convenience of the touch screen allows users to interact with projects without the need for a mouse or keyboard. The screen features a resistive touch surface that measures 180 mm (7") diagonally.

The nTouch 180 case provides several mounting options, including surface, panel, flush and general VESA mounting.

FEATURES

• Touch screen user interface

• Finger or stylus can be used to interact with applications

• Runs Kiosk for control of projects created in NWare

• Mounts via standard VESA 75 mount

• Easy connection and installation

• Software upgradable via USB stick

• Low power requirements.

Specifications

Front of Unit

LED: Indicates power
Screen: 180mm (7") analog resistive touch screen.
Resolution: 800x480 (VGA).
LCD color: Native 262K colors.
Contrast ratio: 400:1.
Can be operated with finger or stylus.

Side of Unit

Power connector: Connector port for AC power
adapter. Unit uses 12V @ 3.0A. Consumption
23W.
Ethernet ports: Two standard Ethernet ports.
One port is used.
USB ports: Standard ports for inserting software
update USB sticks.
Reset button: Power cycles the unit.

Rear of Unit

VESA bracket mounting holes: Four mounting
holes for connecting to a wall mounting bracket.

CPU Specification

Processor: Intel Atom N270.

Mechanical Specifications

Chassis Style: Plastic panel PC.
Dimensions: 225mm (8.9in.) W x 40mm (1.6 in.)
D x 140mm (5.5 in.) H

Environment

Operating temperature: -10° to +60°C.
Operating humidity: -20% - 90% RH.
Storage temperature: -20°C - +70°C.
Storage humidity: 20% - 90% RH.

Architect's & Engineer's Specifications

Touch Screen Panel

The Touch Screen Panel shall be a 180mm (7") resistive touch screen designed for fixed installation in engineered audio and communications systems. The unit shall include an architecture based on an Intel Atom processor. The unit shall run the NWare:Kiosk software to allow users to connect to projects hosted by NIONs and nControls. The unit shall be completely configurable via a Windows-based user interface provided by the unit. Support shall be provided for standard Ethernet management via an integrated, rear panel LAN port. The Touch Screen Panel shall include an embedded Windows operating system. The operating system shall reside on non-mechanical IDE storage media. The storage system shall include support for reading/writing data from the operating system and configuration software. The Touch Screen Panel shall include USB ports to allow software to be copied over to the unit and installed. The Touch Screen Panel shall allow for several mounting configurations via standard VESA mounting holes on the rear of the chassis. All data transports, including Ethernet, shall be available simultaneously. There shall be an LED to indicate that the unit is receiving power. The Touch Screen Panel shall be the nTouch 180 or approved equal.

MediaMatrix ®
Peavey Electronics Corporation

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

SOFTWARE

NWare™ Software

NWare is the software for controlling MediaMatrix® NION® Digital Signal Processors, and is available for download at http://mm.peavey.com.

One software solution for small projects such as small churches or a corporate boardroom to mammoth convention centers and airports.

- NWare™, a new programming and control software package for NION®
- Infinite project scalability
- Native Windows® XP software coding
- World-famous MediaMatrix® audio algorithms
- One software system for all NION DSP solutions
- Extensive network control and operational support
- XML Support
- Support for most popular graphics standards
- One software system for all NION DSP solutions
- 32-bit processing engine

- 24-bit conversion
- Low-latency audio performance
- Network-centric architecture
- Scalable I/O Architecture with two or four 8-channel bays
- Integrated, modular CobraNet™ I/O
- Supports centralized, distributed or hybrid processing models
- Integrated serial support
- Full support for SNMP network management tools
- Software support for large-scale multi-node systems

- Advanced DSP compiler
- Transparent control grouping across multiple "NioNodes" and projects
- Supports redundant, self-healing configurations
- Supports sample rates from 16 kHz to 96 kHz
- Stand-alone, multiple and/or distributed operation
- ControlManager™ software/hardware control solution for multiple projects in one installation

Any Project From the Basic to the Complex

Graphical User Interface

Basic GUI

Complex GUI

Programming Interface

Simple Schematic

Complex Schematic

Commercial Audio
http://commercial.peavey.com

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

SOFTWARE

MWare™ Software

Our 32-bit multifaceted MWare™ operating software is comprised of four applications in one. It is a high-level audio DSP programming language, system design software, system control/networking software, and DSP diagnostic software, making MWare the most powerful digital audio software on the market today. MWare comes standard with hundreds of audio devices ready to use. If you don't see what you need, you can create your own audio devices using MediaMatrix® primitive devices. Minimum Operating Requirements: Windows® NT 4.0 Service Pack 3 (or higher) or Windows 98 (for View file development and remote control only) or Windows 2000/XP (Windows 95 not supported or recommended) 32MB RAM minimum for MWare. Space required for install (from this file): 100.5MB (Zip + Temp Files + Installed Files) Space required after Installation: 81.4MB (Zip + Installed Files) Steps to installing or upgrading to MWare 3.3.5 1. Shut Down any version of MWare that may be running. Setup will abort if MWare or RAMM are running 2. Uninstall any versions of MWare earlier than 3.2a. 3. Install MWare 3.3.5. If you have already installed MWare 3.2a or higher, this setup will upgrade the installation to 3.3.5 Choose: Single File Setup (21.3 MB) April 14, 2004 4. Restarting MWare, you will notice that the version shown is now 3.3.5 NOTE: Changes to MWare 3.x are noted in the MediaMatrix 3x Release Notes

- **ControlMatrix® Devices (for designing CM View files) (info)**
- **Command line scripting**
- **New probe devices**
- **Frequency and phase plots**
- **Gain sharing automatic mic mixers**
- **Remote Access MediaMatrix® using TCP/IP**
- **SMAART™ integration**
- **Support for Next Generation Break-Out-Boxes MM™-8802**
- **PageMatrix™ II Devices included**
- **Feedback Ferret® acoustic feedback eliminator**
- **KOSMOS® audio enhancement device**
- **Telnet support**
- **Full-Time Ambient Level Control (No more waiting for gaps!) (info)**
- **Boolean logic devices**
- **MotoCross Automatic Crossfader (info)**
- **Control grouping**
- **Crossfading Routers (info)**
- **CobraNet® device support**
- **Pitch Shift (info)**
- **Hundreds of audio processing devices**
- **Reverb (info)**
- **Supports Windows XP "Luna" styles (in XP only)**
- **Vocal Eliminator (for Karaoke applications) (info)**
- **Support for the DSP-CNII card**
- **NexSys® integration**

XWare™ Software

The MediaMatrix® XWare™ 2.3h software allows you the ability to design and/or control X-Frame 88 hardware from a PC or laptop. The current version for the X-Frame 88 is 2.3h. The most recent version for the original X-Frame is 1.3d.

- **Read release notes for full list of features**
- **This software is a 32-bit application for WIN95/98/ME/NT.**

Commercial Audio
http://commercial.peavey.com

MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

SOFTWARE

PageMatrix™ Software

This software configures the PageMatrix Command Center's Paging station ports. The PageMatrix Command Center supports up to 16 paging stations and up to 99 zones. This software allows the configuration of the Zone buttons on the paging stations to the actual loudspeaker zones in a system.

ControlMatrix® for Windows®

Features and Capabilities

ControlMatrix II is the next-generation paging product from MediaMatrix. ControlMatrix Host is the extremely powerful paging control hardware system for MediaMatrix digital audio systems, and can be designed as either a centralized, distributed or hybrid system. The new ControlMatrix supports up to 16 stations per host, and the number of hosts can be scaled according to the total number of stations needed.

All current MediaMatrix paging station hardware (PCU ControlMatrix and PM PageMatrix) are fully supported, plus selected third-party page station support.

ControlMatrix II is designed for transportation, convention, theme park and industrial paging applications. Based on an embedded host controller, it provides complete system management for multiple live, pre-recorded, and dynamic delay, stack, store and forward messaging and paging functions. With support for hundreds of remote paging stations, ConrolMatrix II includes high-level network interface for all types of third-party control and data systems.

ControlMatrix II features include:
- *Optional 8x8 analog and 16x16 CobraNet cards*
- *Host redundancy configuration*
- *TTS (Text-to-Speech) engine (with English as standard language – other languages available)*
- *Recording and playback of .wav and mp3 media files*
- *Monitoring and control of network devices*
- *Voice-activated paging routing*
- *Independent paging and program zone configurations*
- *Customizable telephone prompt tree with six initial templates*
- *999 messaging priority levels*
- *Privacy mode for suppression of lower priority pages in each zone*
- *Importing and recording of scheduled messages*

Seamless integration with MediaMatrix NWare software provides even more power, and multiple combinations of system architecture are possible for supporting hundreds or audio inputs and outputs.

ControlMatrix Host also supports ADA standards for visual messaging, includes courtesy announcements, and can interface to FIDS/MUFIDS and other third-party data and control systems often required for airport terminal applications.

Commercial Audio
http://commercial.peavey.com

MediaMatrix®

PageMatrix™

PageMatrix™ Command Center

Among the most complex applications in the commercial audio industry, paging is now made easy with PageMatrix™, our basic paging plug-in for NION® Series and MediaMatrix® frame-based audio processing systems. The PageMatrix Command Center™ is a paging management system for integration with the NION, Mainframe™, or Miniframe™ Series. With PageMatrix™, paging system design is simplified with intuitive, cost-effective paging products. A stand-alone software application, paging controller and a host of remote paging stations provide an integrated and flexible approach for many paging applications. With MediaMatrix DSP processing at the core, PageMatrix provides the end user with simple, transparent access to MediaMatrix's powerful routing capabilities. With the integral WavePlayer software device, remote access of pre-recorded messages is only a button away.

- **Up to 16 station are powered via CAT 5 cable terminated by an RJ-45 connector**
- **99 page zones available via MediaMatrix**
- **24VDC input for emergency back-up of stations**
- **Supports up to 4 MediaMatrix DSP headend systems**
- **Supplies 24VDC to remote stations**
- **Requires two rack spaces**
- **Euro connectors provide audio connections from Command Center to a NION, BoB, or CAB**

PageMatrix™ Station Four-W™

The PageMatrix™ Station Four-W™ is a flush wall-mount, four-button, four-zone paging station. The Station Four-W has a convenient, electronically balanced 5-pin XLR low-Z microphone input.

- **Four zone presets, programmable via PageMatrix command center**
- **Electronically balanced inputs**
- **Mic level control +25dBu full scale**
- **Electronically balanced output**
- **Handheld push-button mic**

- **5-pin XLR low-Z mic input**
- **Powered by 24 VDC from command center**
- **Robust RS-485 communication**
- **Standard NEMA 4G mounting with 2" deep backbox**
- **Simple one wire interconnect using RJ-45 standard connectors and CAT 5 cable**

Features and specifications subject to change without notice.

Commercial Audio
http://commercial.peavey.com

PageMatrix™

PageMatrix™ Station Four

The PageMatrix™ Station Four™ is a four-button, four-zone desktop paging station. The Station Four has two convenient electronically balanced microphone inputs, a 3-pin XLR low-Z mic input and a 5-pin XLR auxiliary low-Z mic input.

- Four-zone preset
- 5-pin auxiliary low-Z mic input
- Electronically balanced inputs

- Mic level control +25dBu full scale
- Electronically balanced output
- 3-pin XLR low-Z mic input
- Powered by 24 VDC from command center
- Robust RS-485 communication
- Simple, one-wire interconnect using RJ-45 standard connectors and CAT 5 cable
- Desktop model
- No local power required

PageMatrix™ Station Ten

The PageMatrix™ Station Ten™ provides 99 zone combination presets, programmable via the PageMatrix Command Center. The Station Ten has two convenient, electronically balanced microphone inputs, a 3-pin XLR low-Z mic input and a 5-pin XLR auxiliary low-Z mic input.

- Desktop paging unit
- 5-pin XLR auxiliary low-Z mic input
- Electronically balanced inputs
- Mic level control +25dBu full scale

- Electronically balanced output
- 3-pin XLR low-Z mic input
- No local power required
- Powered by 24 VDC from command center
- Robust RS-485 communication
- Simple, one-wire interconnect using RJ-45 standard connectors and CAT 5 cable
- The PageMatrix system is not compatible with ControlMatrix products.
- 99 zone presets, programmable via PageMatrix command center
- 20 X 2 LCD backlit

Commercial Audio
http://commercial.peavey.com

PAGEMATRIX™ STATION 4-W

Features
- Four zone presets
- 5-pin XLR low-Z mic input Electronically balanced
- Mic level control +25 dBu full scale
- Electronically balanced output

Applications
- Transportation Centers
- Convention Centers
- Theme Parks
- Industrial Plants
- Medical Centers
- High Rise Facilities
- Research Facilities
- Hotels and Resorts
- Casinos

Operation
- LED color indicates status of each of the four zone presets.
  - Green indicates the zone is available and not in use by another station.
  - Red indicates the zone is in use.
- When the microphone "Talk" button is pressed, the selected zone preset LED turns orange to confirm that it is active. Other stations connected to the system will indicate RED to confirm that this particular zone is in use.
- Press any zone preset button to select. The LED will blink, confirming the selection.

- At power-up, the unit defaults to zone one, and after one minute of inactivity reverts back to zone one.
- Hand-held 5-pin mic input is activated by pressing the "talk" button.
- Zone presets can be labeled in the appropriate white boxes.
- If all LEDs flash red at power-up, this is an indication that the station has not been programmed.
- If all LEDs flash green at power-up, this is an indication that the station has been programmed.

Specifications
Maximum Input Level:
-22 dBu

Maximum Output Level:
+25 dBu

Input Impedance:
2.2K Ohms

Output Impedance:
200 Ohms

Frequency Response:
20 Hz to 20 kHz (+0, -2 dB)

Phantom Power:
+48V DC

Signal-to-Noise Ratio:
Greater than 88 dB
Power Requirements:
48mA at +24V DC

Total Harmonic Distortion:
Less than 0.01% at 1 kHz

Dimensions:
4.5" H x 8.2" W x 1" D
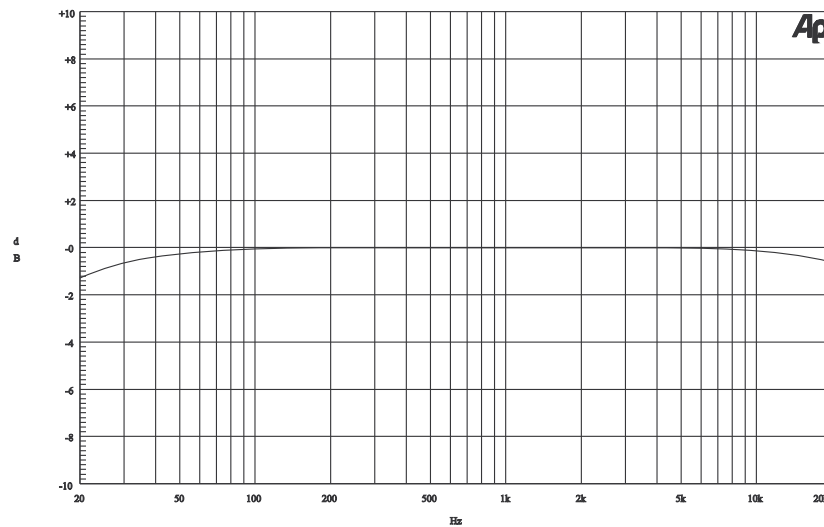11.43cm x 20.82cm x 2.54cm

Architectural and Engineering Specifications
The Station Four-W shall have four momentary non-programmable buttons. Programming for these buttons shall occur at the PageMatrix Controller and in the MediaMatrix pasha.ini file and view file.

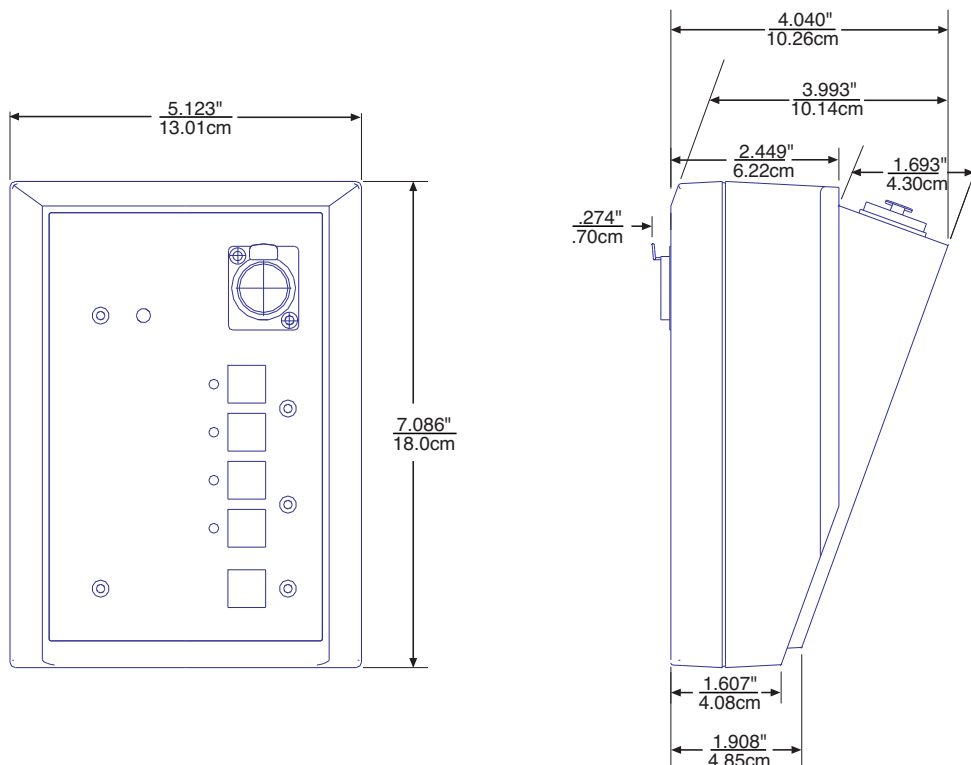The buttons shall light up when pressed, or have a multi function LED beside them indicating "Ready" status. An indicator shall also be present, indicating a "Zone Busy" status. The multi function LED can also serve as the "Busy" indicator. The unit shall have a 5-pin XLR connector on the front panel for a keyed microphone, three pins for audio, and two pins for the keyed mic closure. The closure of the "keyed mic" shall be integral to the final paging function and shall also act as a release for the current zone requested. The unit shall have a microphone pream-plifier and supply +48V phantom power to the mic. The unit shall communicate to the PageMatrix Controller via CATEGORY 5 cable that carries DC power, line level audio, and the RS-485 serial data.

Frequency Response
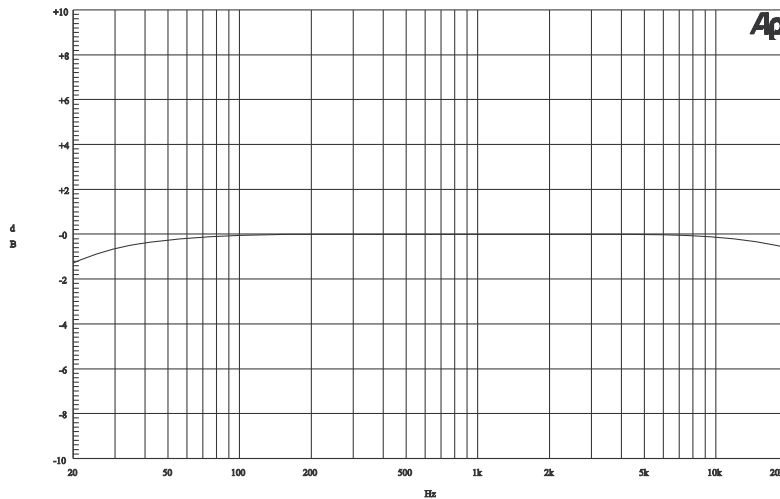
Mechanical Diagram
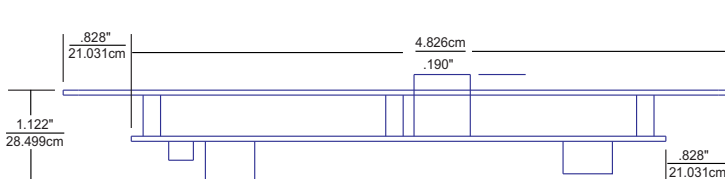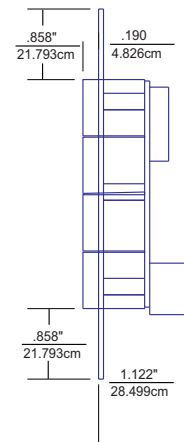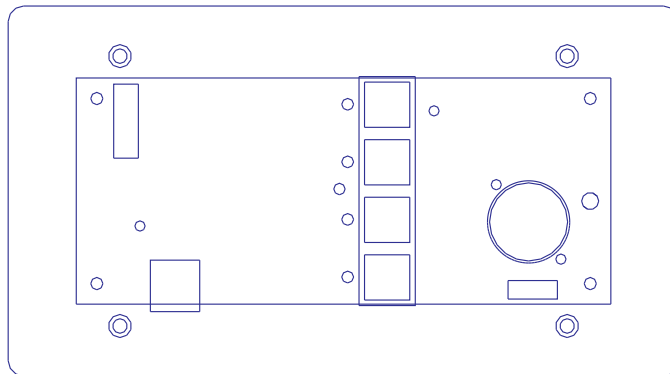
PAGEMATRIX™ STATION 4-W BLOCK DIAGRAM

5-PIN XLR
Mic INPUT

MIC PREAMP

RJ45 JACK

MICROPROCESSOR

RS-485 TRANSCEIVER

+24V DC POWER

ZONE 1-4 SWITCHES
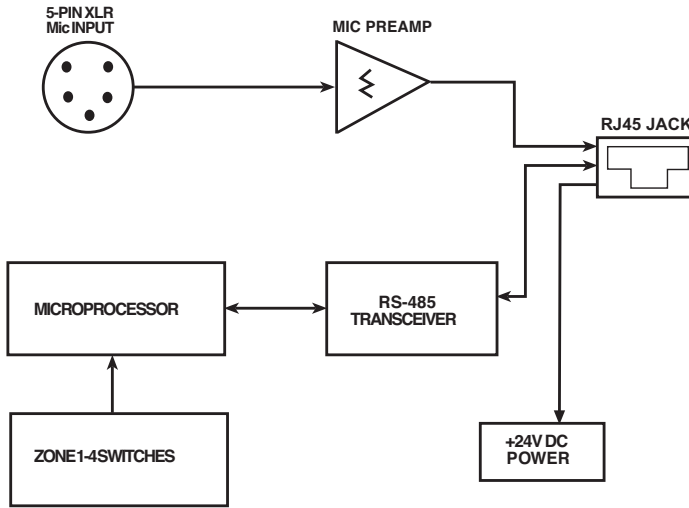
Wiring Diagrams

5-Pin Plug to Mic	
5-Pin Connector	Mic
1	Audio Shield
2	Audio +
3	Audio -
4	Mic Switch
5	GND

8 Position DIP Switch
Reference number: SW 200
Positions: **All 8 OFF**

Cat 5 Plug

8 7 6 5 4 3 2 1

LineOut -
LineOut +
GND {Shield}
GND
+24V
GND
485-
485+

Back View of PCB

DIP SWITCHES
ALL 8 OFF

RJ45 JACK
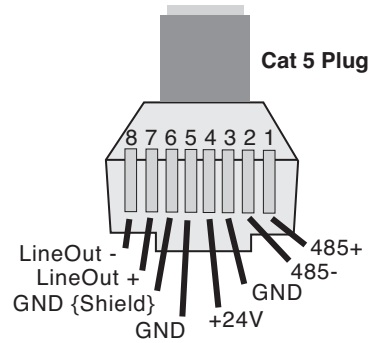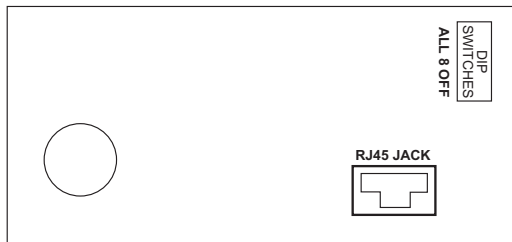
PAGEMATRIX™ STATION FOUR BUTTON

Features
• Four Zone preset
• 3-pin XLR low-Z mic input
  5-pin XLR Aux Mic input
  Electronically balanced
• Mic level control +25 dBu full
  scale
• Electronically balanced output

Applications
• Transportation Centers
• Convention Centers
• Theme Parks
• Industrial Plants
• Medical Centers
• High Rise Facilities
• Research Facilities
• Hotels and Resorts
• Casinos

Operation
▲ LED color indicates status of each of
  the four zone presets.
   ▲ Green indicates the zone is
     available.
   ▲ Red indicates the zone is in
     use.

▲ When the microphone "Push to Talk"
  button is pressed, the selected zone
  preset LED turns orange to confirm that
  it is active. Other stations connected to
  the system will indicate RED to confirm
  that the zone preset is in use.
▲ Press any zone preset button to select.
  The LED will blink, confirming the
  selection.
▲ At power-up, the unit defaults to zone
  one, and after one minute of inactivity
  reverts back to zone one.
▲ Hand-held 5-pin mic input is activated
  by pressing the "talk" button.
▲ Zone presets can be labeled in the
  appropriate white boxes.
▲ If all LEDs flash red at power-up, this is
  an indication that the station has not
  been programmed.
▲ If all LEDs flash green at power-up, this
  is an indication that the station has
  beenprogrammed.
▲ The Aux mic input (rear panel) is
  always routed to zone preset one.

Specifications
Maximum Input Level:
-22 dBu

Maximum Output Level:
+25 dBu

Input Impedance:
2.2K Ohms

Output Impedance:
200 Ohms

Frequency Response:
20 Hz to 20 kHz (+0, -2 dB)

Phantom Power:
+48V DC

Signal-to-Noise Ratio:
Greater than 85 dB

Power Requirements:
55mA at +24V DC
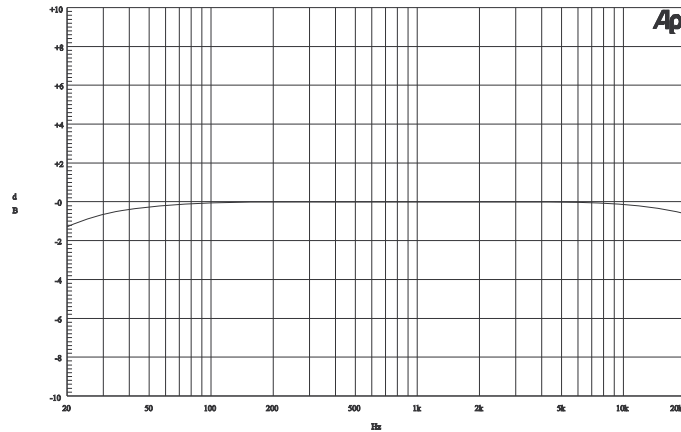
Total Harmonic Distortion:
Less than 0.01% at 1 kHz

Dimensions:
4" H x 5.2" W x 7.1" D
10.16cm x 13.21cm x 18.03cm

Architectural and Engineering Specifications

The Station Four shall have four momentary non-programmable buttons. Programming for these buttons shall occur at the PageMatrix Controller and in the MediaMatrix pasha.ini file and view file. The buttons shall light up when pressed, or have a multi function LED beside them indicating "Ready" status. An indicator shall also be present, indicating a "Zone Busy" status. The multi function LED can also serve as the "Busy" indicator. The unit shall have a 3-pin XLR connector on the front panel for audio. The unit shall have a 5-pin XLR connector on the back panel for a keyed microphone, three pins for audio, and two pins for the "keyed mic" closure. The closure of the "keyed mic" shall be integral to the final paging function and shall also act as a release for the current zone requested. The unit shall have a microphone preamplifier and supply +48V phantom power to the mic. The unit shall communicate to the PageMatrix Controller via RJ45 style connector. The communications cable CATEGORY 5 carries DC power, line level audio, and the RS485 serial data.

Frequency Response

Mechanical Diagram

PAGEMATRIX™ STATION FOUR BLOCK DIAGRAM
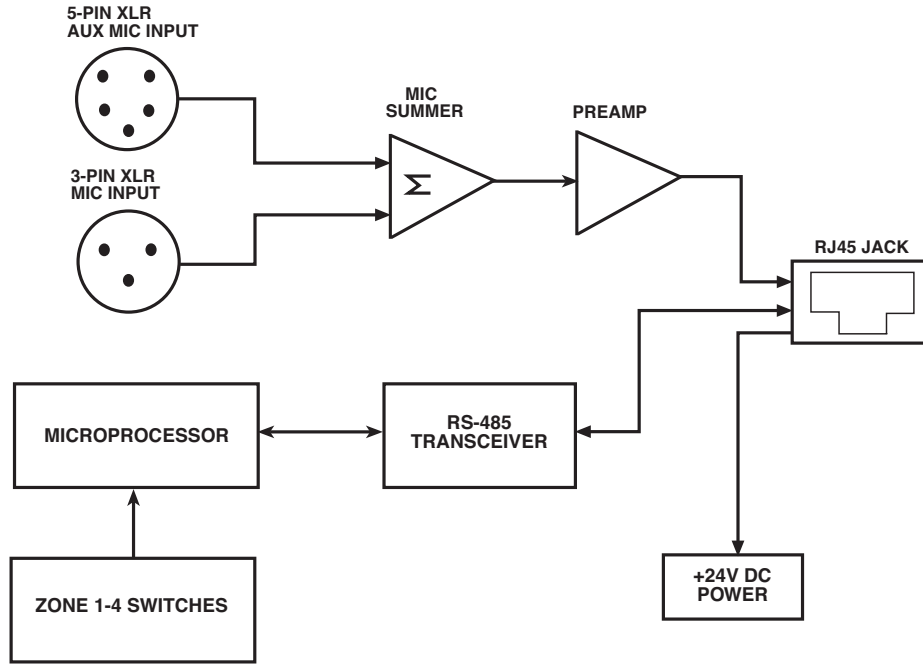
5-PIN XLR
AUX MIC INPUT

3-PIN XLR
MIC INPUT

MIC
SUMMER

Σ

PREAMP

RJ45 JACK

MICROPROCESSOR

RS-485
TRANSCEIVER

ZONE 1-4 SWITCHES

+24V DC
POWER

Wiring Diagrams

Cat 5 Plug

8 7 6 5 4 3 2 1

LineOut -
LineOut +
GND {Shield}
GND
+24V
GND
485-
485+

5-Pin Plug to Mic	
5-Pin Connector	Mic
1	Audio Shield
2	Audio +
3	Audio -
4	Mic Switch
5	GND

PAGEMATRIX™ STATION TEN

Features
- 99 zone presets
- 3-pin XLR low-Z mic input
  5-pin XLR Aux mic input
  Electronically balanced
- Mic level control +25 dBu full scale
- Electronically balanced output
- 20 x 2 LCD

Applications
- Transportation Centers
- Convention Centers
- Theme Parks
- Industrial Plants
- Medical Centers
- High Rise Facilities
- Research Facilities
- Hotels and Resorts
- Casinos

Operation
- LED color indicates status of each of the ten Zone presets.
  - Green indicates the zone is available and not in use by another station.
  - Red indicates the zone is in use.
- When the "Push to Talk" button is pressed, the selected zone preset LED turns orange to confirm that it is active. Other stations connected to the system will indicate RED to confirm that the zone present is in use.
- Press any zone preset button to select. The LED will blink, confirming the selection.
- At power-up, the unit defaults to zone one.
- Aux Mic input (5-pin) on the back panel is programmed for zone preset one.
- For direct zone preset access, the keypad can be used. Simply enter a one or two digit number, then press # to select.
- The selected zone name (user name-able up to 16 characters within the PageMatrix software) will be displayed on the 20 x 2 screen in addition to status (available/busy).
- Zone presets can be labeled in the appropriate white boxes.
- If all LEDs flash red at power-up, this is an indication that the station has not been programmed.
- If all LEDs flash green at power-up, this is an indication that the station has been programmed.
- At power-up, the unit defaults to zone one, and after one minute of inactivity reverts back to zone one.

Specifications

Maximum Input Level:
-22 dBu

Maximum Output Level:
+25 dBu

Input Impedance:
2.2K Ohms

Output Impedance:
200 Ohms

Frequency Response:
20 Hz to 20 kHz (+0, -2 dB)

Phantom Power:
+48V DC

Signal-to-Noise Ratio:
Greater than 84 dB

Power Requirements:
92mA at +24V DC

Total Harmonic Distortion:
Less than 0.01% at 1 kHz

Dimensions:
4" H x 10.4" W x 7.1" D
10.16cm x 26.42cm x 18.03cm

Architectural and Engineering Specifications

The Station Ten shall have ten momentary non-programmable buttons. Programming for these buttons shall occur at the PageMatrix Controller and in the MediaMatrix pasha.ini file and view file. The buttons shall light up when pressed, or have a multi function LED beside them indicating "Ready" status. An indicator shall also be present, indicating a "Zone Busy" status. The multi function LED can also serve as the "Busy" indicator. The unit shall have a "Telephone Type" keypad, programmed for zone information entry. The "*" key shall represent an "Edit" function, and the "#" key shall represent an "Enter" function. This keypad shall act as a direct zone entry mechanism by "keying" in the zone number, then pressing enter to active the zone. The LCD panel shall display "Status" information of the Paging System and the Paging Unit. The unit shall have a 3-pin XLR connector on the front panel for audio. The unit shall have a 5-pin XLR connector on the back panel for a keyed microphone, three pins for audio, and two pins for the "keyed mic" closure. The closure of the "keyed mic" shall be integral to the final paging function and shall also act as a release for the current zone requested. The unit shall have a microphone preamplifier and supply +48V phantom power to the mic. The unit shall communicate to the PageMatrix Controller via RJ45 style connector. The communications cable (CATEGORY 5) carries DC power, line level audio, and the RS485 serial data.
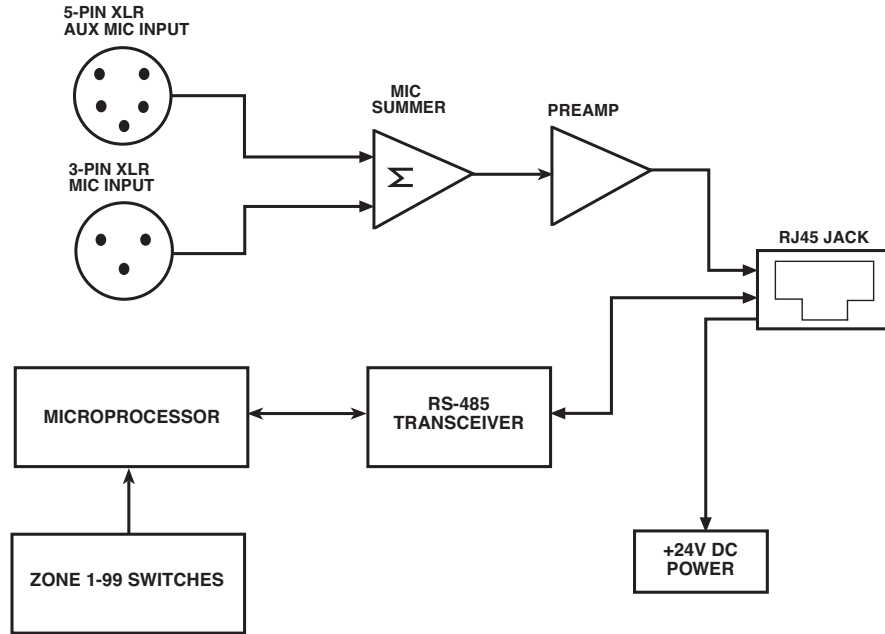
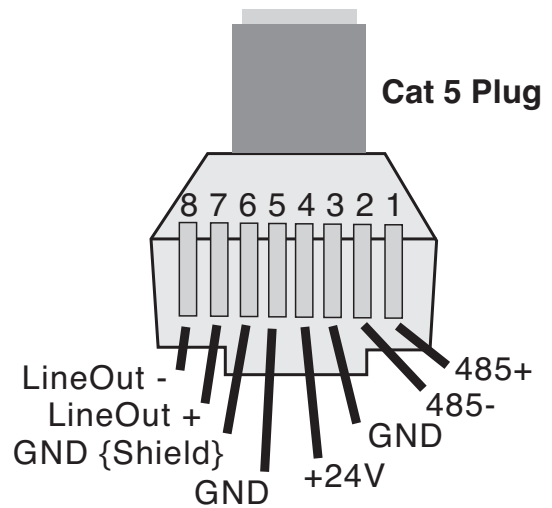### Frequency Response

Mechanical Diagram
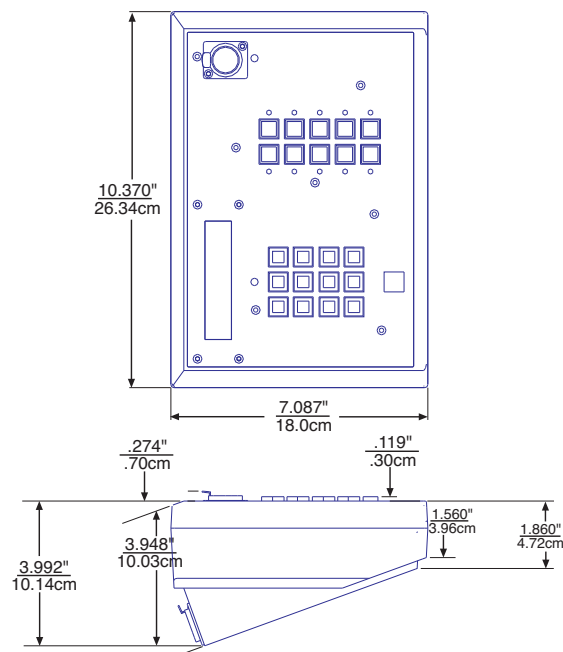
PAGEMATRIX™ STATION TEN BLOCK DIAGRAM

5-PIN XLR
AUX MIC INPUT

3-PIN XLR
MIC INPUT

MIC
SUMMER

Σ

PREAMP

RJ45 JACK

MICROPROCESSOR

RS-485
TRANSCEIVER

ZONE 1-99 SWITCHES

+24V DC
POWER

Wiring Diagram

5-Pin Aux Mic	
5-Pin Connector	Mic
1	Audio Shield
2	Audio +
3	Audio -
4	Mic Switch
5	GND

Cat 5 Plug

8 7 6 5 4 3 2 1

LineOut -
LineOut +
GND {Shield}
GND
+24V
GND
485-
485+

ControlMatrix® for Windows®

ControlMatrix® is a comprehensive, industrial paging solution seamlessly integrated with MediaMatrix® NION®. Built on the stability of a robust, mission-critical paging controller, ControlMatrix provides powerful, versatile & efficient paging functionality for the most demanding applications. A powerful feature set that includes dynamic priority group paging, message scheduling, text-to-speech conversion, ADA signage support, redundant operation and integrated supervisory technology provide stable, reliable performance for critical applications.

Built on an open-architecture, network-based transport model designed to maximize infrastructure and minimize proprietary cabling, ControlMatrix provides flexible connectivity options with support for CobraNet® audio networks, standard Ethernet and serial data systems.

ControlMatrix systems have been installed in world-class transportation facilities worldwide. The open-ended architecture makes ControlMatrix an excellent solution for integration within transportation system infrastructure. Integrated software and extensive options for transporting audio, control and data make ControlMatrix perfect for terminal buildings, ticketing lobbies and boarding areas. Interface to ADA-compliant signage systems, serial and TCP/IP-driven control systems is integral without invasive requirements for additional hardware.

A wide range of hardware options provide a simple and efficient design model. Full-featured microphone paging stations with high-quality audio electronics and intuitive controls are available for routine paging and administrative locations. Additional control is available with integrated, configurable remote panels. Both stations and control panels are supported by an extremely stable redundant power supply designed for mission-critical applications.

ControlMatrix for Windows represents the next generation in high-end paging communications. The world-class performance and proven reliability of MediaMatrix audio products is behind every ControlMatrix system. With the full resources, technical support and product development that has made MediaMatrix the first choice of the world's best audio designers, ControlMatrix is making the best audio systems even better.

Airports
Transportation Centers
Stadiums and Sports Complexes
Convention Centers
Educational & Corporate Campuses
Manufacturing Facilities
Theme Parks
Hospitals
Casinos
Cruise Ships
Government Facilities
Military Bases

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

ControlMatrix® for Windows®

Features and Capabilities

ControlMatrix II is the next-generation paging product from MediaMatrix. ControlMatrix Host is the extremely powerful paging control hardware system for MediaMatrix digital audio systems, and can be designed as either a centralized, distributed or hybrid system. The new ControlMatrix supports up to 16 stations per host, and the number of hosts can be scaled according to the total number of stations needed.

All current MediaMatrix paging station hardware (PCU ControlMatrix and PM PageMatrix) are fully supported, plus selected third-party page station support.

ControlMatrix II is designed for transportation, convention, theme park and industrial paging applications. Based on an embedded host controller, it provides complete system management for multiple live, pre-recorded, and dynamic delay, stack, store and forward messaging and paging functions. With support for hundreds of remote paging stations, ConrolMatrix II includes high-level network interface for all types of third-party control and data systems.

ControlMatrix II features include:
- *Optional 8x8 analog and 16x16 CobraNet cards*
- *Host redundancy configuration*
- *TTS (Text-to-Speech) engine (with English as standard language – other languages available)*
- *Recording and playback of .wav and mp3 media files*
- *Monitoring and control of network devices*
- *Voice-activated paging routing*
- *Independent paging and program zone configurations*
- *Customizable telephone prompt tree with six initial templates*
- *999 messaging priority levels*
- *Privacy mode for suppression of lower priority pages in each zone*
- *Importing and recording of scheduled messages*

Seamless integration with MediaMatrix NWare software provides even more power, and multiple combinations of system architecture are possible for supporting hundreds or audio inputs and outputs.

ControlMatrix Host also supports ADA standards for visual messaging, includes courtesy announcements, and can interface to FIDS/ MUFIDS and other third-party data and control systems often required for airport terminal applications.

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

ControlMatrix® for Windows™

ControlMatrix® Host

The MediaMatrix® ControlMatrix® Host features our new fully integrated Control-Matrix operating system. One ControlMa-trix Host provides connectivity for up to 16 paging stations and integrates Courtesy Announcements, Store and forward pag-ing, Signage, and Text-to-Speech. Mul-tiple units can be interfaced for situations requiring more than 16 stations. Multiple units can be installed in a distributed, cen-tralized, or hybrid system configuration. PLEASE NOTE: ControlMatrix for Windows is NOT COMPATIBLE with older Q-Host, A-Host, and C-Host units.

- Completely integrated solution to paging
- Distributed, centralized, and hybrid system configurations are possible
- Each ControlMatrix Host supports up to 16 paging stations
- Text-to-Speech in many languages available; one language comes standard

- Redundant power supplies (requires two line cords)
- Redundant disk drives (Two drive RAID array)
- Analog and/or CobraNet audio I/O available
- Seamless telephone paging support w/ voice driven user prompts
- Optional "store and forward" paging operation for zone management and maximum audio performance

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ControlMatrix® for Windows®

CMA-PM Aggregator

The primary purpose of the CMA-PM Aggregator is to provide connectivity for up to four PageMatrix paging stations to the new ControlMatrix for Windows (ControlMatrix Host) product. Connectivity to the paging stations is done via the PageMatrix standard. Connectivity to the ControlMatrix Host product is via Ethernet and analog audio (as separate connections).

The Peavey DMG-5V Gooseneck Desktop Microphone

The Peavey DMG-5V Gooseneck Desktop Microphone delivers all of the professional features needed for conference tables, meeting rooms, paging, and more. The flexible dual capsule design provides continuously-variable pickup patterns for a wide variety of applications. From Omni-directional, to super-cardioid, to figure-8 pattern, all are available by simply adjusting the pattern contour control in the base. The DMG-5V is also immune to radio-frequency (RF). The integrated desk stand includes a programmable switch, allowing use as either a push to talk or push to mute (cough mute) microphone. The base features a 3-pin XLR connector, or internal Euro-connectors for permanent installations.

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MediaMatrix®

ControlMatrix® for Windows®

TPU-4™

The MediaMatrix® TPU-4™ is a half-width, 1RU, four line hybrid telephone interface. The TPU-4 allows standard two-wire connections to a PBX system. It is designed for use with NION® and nControl™ and is a fully supported device in the NWare™ software. It can be used in telephone conferencing and paging applications. This device provides connections for analog telephone lines and analog audio to and from the DSP.

- **Four telephone hybrids in a single, half-rack device**
- **Ideal for use with the NIO™-4x4 card to interface the audio in and out of the NION**
- **Controlled directly from within NWare**
- **Connect to NION or nControl for control**
- **Connect to NION or CAB™ for audio I/O**
- **Rear panel serial connection via 4-position Euro connector**

- **Extra jack for optional telephone handset on each hybrid interface**

TPU-2™

The MediaMatrix® TPU-2™ is a half-width, 1RU, two line hybrid telephone interface. The TPU-2 allows standard two-wire connections to a PBX system. It is designed for use with NION® and nControl™ and is a fully supported device in the NWare™ software. It can be used in telephone conferencing and paging applications. This device provides connections for analog telephone lines and analog audio to and from the DSP.

- **Two telephone hybrids in a single, half-rack device**
- **Ideal for use with the NIO™-4x4 card to interface the audio in and out of the NION**
- **Controlled directly from within NWare**
- **Connect to NION or nControl for control**
- **Connect to NION or CAB™ for audio I/O**
- **Rear panel serial connection via 4-position Euro connector**

- **Extra jack for optional telephone handset on each hybrid interface**

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MediaMatrix®

The World's Most Powerful DSP-Based Audio Tool

ControlMatrix® for Windows®

MediaMatrix® Digital Paging Stations — CM2-APS   CM2-10d   RMP-2

The MediaMatrix® CM2-APS, CM2-10d and RMP-2 paging stations interface with the ControlMatrix® II integrated hardware and software paging platform over Ethernet, providing designers and integrators with a convenient method of adding paging stations to their projects with a single network connection.

Peavey ControlMatrix Series paging systems are installed worldwide in transportation terminals, sporting facilities and entertainment venues, and the addition of these new digital paging stations make installation of ControlMatrix systems easier than ever.

The MediaMatrix CM2-APS is a rack-mounted, networkable administrator paging station that connects directly to a CobraNet® network for all audio, control and power connections through a single Ethernet network cable and a standard 8P8C modular connector (RJ-45). The CM2-APS includes a handheld dynamic microphone with a PTT

(Push-To-Talk) switch, and an internal 5-watt power amplifier with front-panel level control that drives an integrated loudspeaker to allow page monitoring. A high-quality microphone preamplifier and analog-to-digital converter transform the audio for the digital space.

The steel front panel of the CM2-APS is designed for rack-mount applications where an administrator paging station is required in control rooms, terminal gear areas, IDFs or network operation centers. The CMS-APS will operate on either PoE (Power over Ethernet) technology or DC low voltage power (local or remote).

The MediaMatrix CM2-10d paging station features a handheld dynamic microphone with a PTT (Push-To-Talk) switch, a high-quality microphone preamplifier, and a built-in analog-to-digital converter. All connections to the CM2-10d are accomplished through a single Ethernet network cable. Power is via PoE (Power over Ethernet) tech-

nology and local or remote DC low voltage power. The high-impact ABS cabinet design allows the CM2-10d to be used on desktops, surface mounted on vertical surfaces or flush mounted using an optional steel backing box.

The RMP-2 is a flush-mounted remote mic station that extends paging functions to a second location in areas such as airport jetways and train station loading platforms. The RMP-2 is powered by a "host" ControlMatrix digital paging station, such as the CM2-10d, via a single Ethernet-type connection. The RMP-2 function is programmed with the ControlMatrix II software and allows the remote user to page to the last zone selected at its host paging station, or to default to the local zone to which it is assigned. A status LED on the front panel alerts the user when the host paging station is in use. The RMP-2 is housed in a durable 16-gauge steel front panel which mounts in a standard two-gang NEMA enclosure.

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ControlMatrix Series MediaMatrix

RMP-2™ Remote Mic Station

The RMP-2 is a flush-mounted remote mic station. The RMP-2 extends the paging mic function to a second location in areas such as airport jet ways and train station loading platforms. The RMP-2 connects to and is powered by a "host" ControlMatrix digital paging station (such as the CM2-10d) via a single Ethernet type connection. The RMP-2 function is programmed with the ControlMatrix II software, and allows the remote user to page to the last zone selected at its host paging station, or to default to the local zone to which it is assigned. A status LED on the front panel alerts the user if the host paging station is in use. The RMP-2 is housed in a durable 16-gauge steel front panel which mounts in a standard two-gang NEMA enclosure.

• Easily configurable for administrative or user paging with ControlMatrix II software.

• Operates via standard Ethernet topology with direct connection to the host paging station.

• Compact design with a durable powder-coated steel faceplate, mounts in a standard two-gang NEMA enclosure.

• Front panel status LED provides confirmation that the station is available for paging.

• Handheld dynamic microphone with PTT switch.

• Integrated microphone clip.

• Simple, intuitive operation.

ControlMatrix RMP-2™

Front Panel Features:

- 5 pin XLR for handheld dynamic microphone with PTT (included) with gain adjustment
- Station status LED
- PTT microphone clip

Audio Inputs:

- Front panel 5 pin XLR for handheld dynamic microphone

Microphone:

- Noise cancelling dynamic communications microphone with TALK switch, black neoprene coiled cable harness terminated with male 5 pin XLR

Data Interface:

- Ethernet 8P8C modular plug jack (RJ-45 jack) for connection to the host ControlMatrix paging station.

Power:

- Powered through connection to the host ControlMatrix paging station.

Mounting:

- Flush-mounts in a standard two-gang NEMA enclosure.

Features & specifications are subject to change without notice.
Drawings & illustrations not to scale.

MediaMatrix®

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Video Products

VCAT-R Receiver

The VCAT is an analog VGA twisted pair system including transmitter (VCAT-T) and receiver (VCAT-R). Resolutions up to WUXGA (1920x1200) can be transported up to 150 meters (500 feet) of unshielded CAT5e/CAT6 cable. The two RJ-45 connectors on the VCAT Transmitter permit the distribution of the signal to two receivers

for easier routing. The VCAT Receiver also has a "thru" output for connecting a second receiver. Multiple receivers can use a single path of cable, but the total distance of the data cable must be less than 150 meters. A single knob on the receiver adjusts for cable length, for easy installation.

- **HD-15 video output**
- **Ethercon (RJ-45 compatible) inputs**
- **Ethercon (RJ-45 compatible) thru output**
- **Cable length compensation control**
- **15 VDC input (required item #03004300)**
- **15 VDC power supply included**

VCAT-T Transmitter

The VCAT is an analog VGA twisted pair system including transmitter (VCAT-T) and receiver (VCAT-R). Resolutions up to WUXGA (1920x1200) can be transported up to 150 meters (500 feet) of unshielded CAT5e/CAT6 cable. The two RJ-45 connectors on the VCAT Transmitter permit the distribution of the signal to two receivers

for easier routing. The VCAT Receiver also has a "thru" output for connecting a second receiver. Multiple receivers can use a single path of cable, but the total distance of the data cable must be less than 150 meters. A single knob on the receiver adjusts for cable length, for easy installation.

- **HD-15 Video input**
- **Ethercon (RJ-45 compatible) outputs**
- **15 VDC input (required item #03004300)**
- **15 VDC power supply included**

VGA-2 Buffer Amplifier

The VGA-2 is a buffer amplifier for connecting the HD-15 analog display output from a computer to two displays. The VGA-2 can be used to drive two projectors or a moni-

tor and projector from a computer. The VGA-2 will handle screen resolutions up to WUXGA (1920x1200).

- **HD-15 VGA input connector**
- **2x HD-15 VGA output connectors**
- **15 VDC input (required item #03004300)**
- **15 VDC power supply included**

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Video Products

MediaMatrix® Video Scalers/Switchers—VSC-101tn™ VSC-101™ VSC-51™ VCAT-HD™

The new MediaMatrix® family of versatile and highly capable video products—the VSC-101tn, VSC-101, VSC-51 and VCAT-HD video scalers and switchers—provides an integrated video solution for mid-level entertainment venues, houses of worship, conference rooms and educational facilities. Through this new suite of products, users can configure and control video projects in MediaMatrix installations using the intuitive NION® drag-and-drop interface for nControl™, nTouch™ surface-mount panels, the NWare™ iOS Mobile App and more.

The VSC-101 is a full-function, rack-mountable scaling presentation switcher that scales up to 10 video inputs to a simultaneous HDMI and VGA output. Video inputs include 4 x HDMI (1.4 compliant), 4 x VGA with 1/8-inch (3.5mm) stereo audio inputs, 1 x Component Video, 1 x S-Video, and 2 x Composite Video. The VSC-101tn also includes a twisted-pair output for connection to the included VCAT-HD-R via CAT-5e or CAT-6 shielded cable up to a distance of 70 meters. Both models include balanced audio outputs, and a 10-watt power amp for audio monitoring.

The VSC-51 scaling presentation switcher scales up to five video inputs to an HDMI output. Video inputs include 2 x HDMI, 1 x VGA, 1 x Component Video, 1 x Composite Video or S-Video. The VSC-51 also features a 1/8-inch (3.5mm) stereo analog audio output and a SP/DIF digital audio output (RCA Jack) for audio-follow-video. The VSC-51 can be rack mounted to the front or rear of standard equipment racks.

The VSC-101, VSC-101tn and VSC-51 are HDCP 1.3 compliant and compatible with NTSC 3.58, NTSC 4.42, PAL, and SECAM. All functions can be controlled via the front panel, the provided hand-held IR remote, or serially by an external NION controller via RS-232.

The VCAT-HD is an HDMI/IR/RS232 transmitter (VCAT-HD-T) and receiver (VCAT-HD-R) pair. The VCAT-HD uses HDBaseT technology to deliver a HDMI signal and control signal (IR & RS-232) over a single shielded, twisted-pair data cable, with a maximum transmission distance of up to 70 meters with CAT5e/CAT6 cable.

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Accessories

Audinate Dante® Legacy Module (DLM)

The Audinate DLM is the Dante® Legacy Module. Built as a drop-in replacement for the Cirrus Logic CobraNet® CM-1 module. It is available for customers who would like to transform their NION® with CobraNet to a NION with Dante. The Audinate DLM is available for the NION and CAB™ 4n only.

- **32x32 channels (NION)**
- **16x16 channels (CAB 4n)**
- **Gigabit Ethernet / IP**
- **Drop in replacement for CM-1 module**

CAB™ 8n/Aggregator Rack Tray

This rack wide shelf can hold up to two CAB™ 8n or CMA-PM Aggregator units. The rack kit includes one shelf, one front panel, one panel cover and screws.

- **1 rack wide; 1RU in height**
- **One panel cover included to hide empty side of shelf**

CobraNet® CM-1 Module

The CM-1 Module is the Cirrus Logic CobraNet® module. The CM-1 supports 32x32 CobraNet audio and offers primary and secondary network connections via RJ-45 jacks. It can be added to the NION® nE, or included as an option in the NION n3, NION n6 or NION nX. It is also available as an option in the CAB™ 4n.

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Accessories

GPIO-25™

A 36-inch (91 cm) male-to-female DB-25 cable is included for direct connection to the GPIO port of the NION® n3, NION n6 or CAB™ 4n. A 4-inch (10 cm) section of DIN rail is also provided for single-unit installations. Contacts rated for 500mA.

- **Allows easy wiring access to the 25-pin "D" connector GPIO port**
- **Eliminates soldering "D" connectors**
- **Includes 36-inch DB-25 interconnect cable**
- **Includes 4-inch section of DIN rail**
- **Euro connector with screw terminals**

nTouch™ 180 In-Wall Mount Kit

The nTouch™ 180 In-Wall Mount Kit is an assembly that allows flush mounting of the nTouch 180 into the wall. It features a deep back box to allow plenty of room for terminations and cable passage. It can also be used in both new and old construction environments with the simple use of the retaining ring.

- **Compatible with old and new construction**
- **Securely mounts nTouch 180 in the wall**
- **Security head screws can be substituted for even more security**
- **Trim bezel snaps over the unit for a sleek final appearance**
- **Back box is more than three inches deep for ease of installa**

nTouch™ 180 Rack Mount Kit

This is a kit for rack mounting the nTouch™ 180. This kit features a rack mount panel with a cut out to fit the nTouch 180 and brackets that clip into the nTouch 180 to securely fasten it to the panel.

nTouch™ 180 V-Stand Multi-Mount Stand

Multi-Mount Stand for the nTouch™ 180. Features a VESA-75 mount to attach to the nTouch 180 and allows attachment to the wall. Can be set to any angle from 0 to 90 degrees.

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