



## 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.

