

# MediaMatrix®

A Division of Peavey Electronics Corporation



## cab 8<sup>n</sup>



## CAB 8n Hardware Manual

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## Scope

This guide describes how to physically install a CAB 8n and configure it with basic settings. It is assumed that you have installed NWare and are familiar with how to use it effectively.

For information on NWare, refer to the NWare User Guide.

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# Chapter 1

# Important safety instructions

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## Safety warnings

**Warning:** When using electrical products, basic cautions should always be followed, including the following:

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding plug. The wide blade or third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point they exit from the apparatus.
11. Only use attachments/accessories provided by the manufacturer.
12. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. Never break off the ground pin. Write for our free booklet *Shock Hazard and Grounding*. Connect only to a power supply of the type marked on the unit adjacent to the power supply cord.
16. If this product is to be mounted in an equipment rack, rear support should be provided.
17. Control panel devices, including the xControl range, D series and nTouch 60, are designed for mounting in NEMA metal enclosures. Grounding to the front plate is required.
18. **Note for UK only:** If the colors of the wires in the mains lead of this unit do not correspond with the terminals in your plug, proceed as follows:
  - a) The wire that is colored green and yellow must be connected to the terminal that is marked by the letter E, the earth symbol,
  - b) colored green or colored green and yellow.
  - c) The wire that is colored blue must be connected to the terminal that is marked with the letter N or the color black.

- d) The wire that is colored brown must be connected to the terminal that is marked with the letter L or the color red.
19. This electrical apparatus should not be exposed to dripping or splashing and care should be taken not to place objects containing liquids, such as vases, upon the apparatus.
20. The on/off switch in this unit does not break both sides of the primary mains. Hazardous energy can be present inside the chassis when the on/off switch is in the off position. The mains plug or appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.
21. Exposure to extremely high noise levels may cause a permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a sufficient time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the following permissible noise level exposures:

<b>Duration Per Day in Hours</b>	<b>Sound Level dBA, Slow Response</b>
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

According to OSHA, any exposure in excess of the above permissible limits could result in some hearing loss. Ear plugs or protectors to the ear canals or over the ears must be worn when operating this amplification system in order to prevent a permanent hearing loss, if exposure is in excess of the limits as set forth above. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels such as this amplification system be protected by hearing protectors while this unit is in operation.

***SAVE THESE INSTRUCTIONS!***



# Chapter 2

## Before you start

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## Important network considerations



This product is designed to operate on a network backbone or infrastructure. The design, implementation and maintenance of this infrastructure is critical to correct operation and performance of the product. Peavey Electronics Corp does not support nor service network cabling, hubs, switches, patch bays, wall plates, connector panels or any other type of network interconnect device. Please ensure that these components and their associated installation techniques have been properly designed and installed for audio and network applications.

## Thank You!

Thank you for purchasing this MediaMatrix product. It is designed to provide years of trouble-free operation and high quality performance. We are confident that you will find this product and other MediaMatrix products to be of the highest quality.

## Warranty Registration

Please take a few minutes and fill out the warranty registration card. Although your warranty is valid without the registration, the information you provide with the form is crucial to our support group. It enables us to provide better service and customer support, and to keep you informed of new product updates.

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**Tip:** Refer to the warranty statement at the rear of this manual for details of what your warranty includes and what the limitations are.

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## What's in the box?

The CAB 8n is packaged in a single container. This container includes the following items:

- CAB 8n
- Power adapter with cable (120VAC Domestic, 230VAC Export)
- Power supply cord with two-pin Mini Euro connector
- User literature package.

If any of these items is missing, please contact your Authorized Peavey MediaMatrix contractor/dealer.

## Chapter 3

# Introduction to the CAB 8n

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## Description

The CAB 8n Configurable Audio Bridge is an eight channel audio input and output device. It is designed to be used with MediaMatrix NIONs in professional and commercial audio and communications applications.

The cost-effective, 1U-high, half U-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 network, or as an analog audio output.

Audio inputs accept microphone or line-level audio signals, and allow fine-grained remote control of input gain. Up to 48V of phantom power is available per channel. Audio outputs provide line-level audio signals with fine-grained remote level control, relay mute, and direct signal monitoring.

The CAB 8n features a wide range of control interfaces, 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 contact-closure circuits, a fault indicator contact-closure circuit, and an RS-232, EIA-485 and EIA-422 full-duplex serial port.

## Features

- Eight channels of 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
- Eight 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
- Serial port that supports RS-232, EIA-485 and EIA-422 for interfacing with 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 hardware ID selection

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

## Applications

- Stadiums
- Auditoriums
- Arenas
- Civic centers
- Performing arts centers
- Theaters
- Courts of law
- Houses of worship
- Campus buildings
- Theme parks
- Hotel meeting rooms
- Conference centers
- Schools
- Cruise ships
- Teleconferencing
- Distance learning
- Large-scale paging
- Multi-purpose facilities
- Retail
- Restaurants & bars
- Gaming
- Institutional paging
- Communications
- Correctional facilities
- Professional complexes
- Residential.

## Front Panel



### 1. Status LEDs.

**Link** indicates that the physical layer connection has been established between the CAB 8n and the network switch. The status of the connection is also indicated by the Link LED in the **CAB 8n** block in NWare.

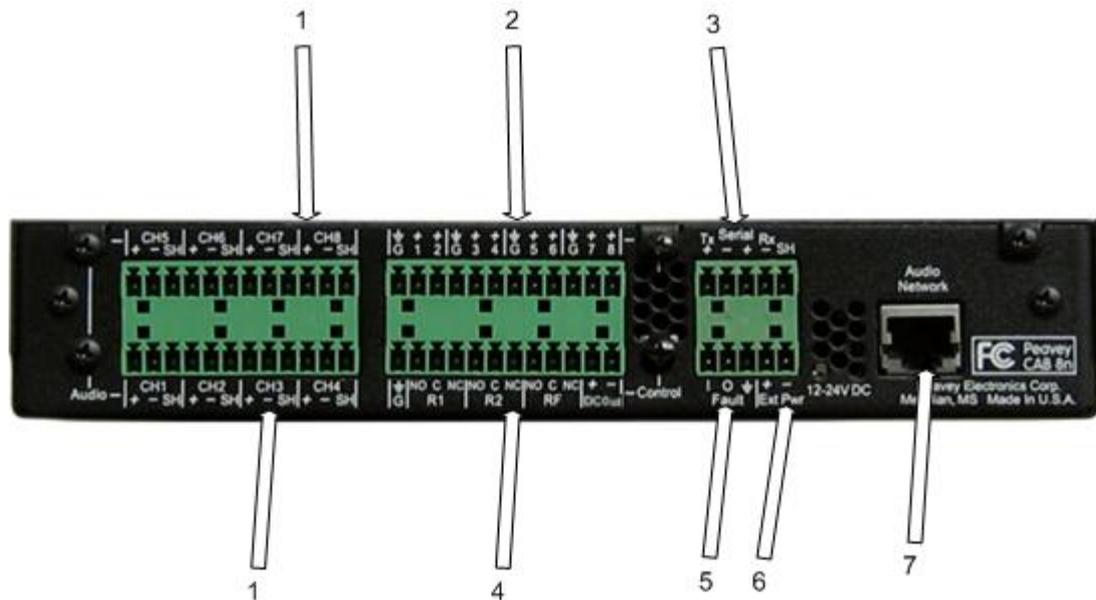
- **Status/Data** indicates that data is being transmitted or received from the CobraNet network.
- **Power** indicates that the CAB 8n is powered from an AC mains or PoE power source.
- **Fault** indicates that a fault has occurred with the CAB 8n and the device has switched to fault mode.

### 2. AUDIO METERS.

Peak reading LED ladder displays, indicating audio input/output levels. For inputs, the signal level is displayed after the A/D converters. For outputs, the signal level is displayed after the D/A converters.

- ### 3. REMOVABLE PANEL.
- Behind the panel are four rotary switches for setting the hardware ID.

## Rear panel



1. **AUDIO INPUT/OUTPUT CONNECTORS** Eight channels of balanced analog audio, independently selectable to be either mic/line input with phantom power, or line output. These are identical to the NION audio connectors.

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**Note:** If PoE is used, the total power consumed by the unit must not exceed 12.5W. If more power is consumed, the unit will automatically shut down.

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2. **GPIO PORTS.** Eight ports, independently configurable as digital out, high current digital out, digital in or analog in at 10 bit resolution.
3. **SERIAL PORT.** Supports full duplex RS-232/EIA-485/EIA-422 serial communications or half duplex EIA-485 serial communications. For information on the pin outs, see *Serial communications* (on page 28).
4. **CONTACT CLOSURES** Ground pin (G), two user-controlled contact closure circuits (R1 and R2), one fault indicator contact closure (RF) and one DC supply output connector. The RF contact closure is activated when there is a fault with the CAB 8n and the Fault LED on the front of the unit is lit.

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**Caution:** If the Ext Pwr connector is used, the voltage available via the DC supply output connector (marked DC Out) will be the same as the voltage supplied via the Ext Pwr connector. Equipment connected to the DC Out connector must be compatible with the supplied voltage.

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**Note:** The DC Out connector cannot be used when the CAB 8n is powered using PoE.

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5. **FAULT CONNECTOR** Three pin connector for linking the unit to a backup unit in a fault tolerant configuration.
6. **POWER CABLE RECEPTACLE** Two-pin Mini Euro connector. Accepts 12-24V DC at 1.6A.



Use only the supplied power supply with appropriate mains cable.

7. **COBRANET NETWORK I/O** Single RJ-45 connector provides interface to the CobraNet audio network. This connector can also supply power to the unit if it is connected to a Power over Ethernet (PoE) switch.

# Chapter 4

## Installing the CAB 8n

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## Introduction

The CAB 8n is a 1RU device that can be mounted in a number of configurations:

- In a 19" EIA equipment rack tray with one unit in the tray.



- In a 19" EIA equipment rack tray with two units in the tray.



- On a surface
- Under a surface. The CAB 8n has four holes that pass right through the case (indicated by the circles below), which are designed to allow it to be fixed under a surface by #8 or M4 screws.



This product should be installed so that its mounting position does not interfere with proper ventilation. Do not block air intake or exhaust vents.



The power switch in this unit does not break both sides of the primary mains. Hazardous energy can be present inside the chassis when the power switch is in the off position. The mains plug or appliance coupler is used as the disconnect device, the disconnect device shall remain readily operable.

## What you will need

- A MediaMatrix NION with CobraNet interface.
- The latest NWare software. (Updates can be downloaded from the *MediaMatrix website* (<http://www.peaveycommercialaudio.com/products.cfm/Software/NWare-Software/NWare-Software>).
- A computer running Microsoft Windows, with monitor, mouse and keyboard.
- An assortment of CAT 5e or CAT 6 cables.
- At least 1 CAB 8n.
- An audio source, cables, power amplifier and loudspeaker.
- A small Phillips screwdriver.
- A small flat-blade screwdriver.
- A network switch connected to the CobraNet network.

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**Note:** The selection of a proper network switch is critical for a successful implementation. Although CobraNet is an Ethernet protocol, there are performance issues that must be considered when selecting this switch for use in CobraNet audio systems.

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In MediaMatrix, the minimum CAB 8n CobraNet system consists of a single NION, a CAB 8n and a single Ethernet switch. Many systems will include more NIONs and CAB devices, but this is the most basic configuration.

## Connections

### CobraNet network connection

The first priority is the CobraNet™ network connection. The RJ-45 connectors on the CobraNet interface are designed to connect with standard, off-the-shelf Category 5, 5e or 6 cable for use with standard Ethernet network switches.

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**Notes:**

- The network must be properly designed for each system. If you lack experience in networking, we suggest that you partner with someone with networking experience.
  - Gigabit switches are recommended.
  - CAT 5e or CAT6 cables are recommended.
- 

A typical CobraNet system includes a connection from each CAB to a network switch. An additional network cable connects the switch to one or more NION CM-1 cards.

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**Note:** The example below is the most basic configuration. Large systems on managed networks can get very complex. We recommend that you get this configuration working before attempting a more complex one.

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### NION back panel



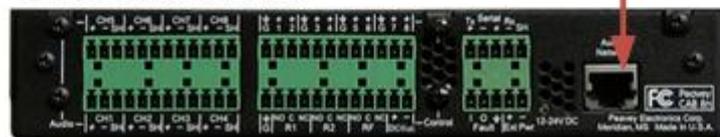
Standard CAT5e or 6 cable

100 BaseT network switch



Standard CAT5e or 6 cable

### CAB 8n back panel

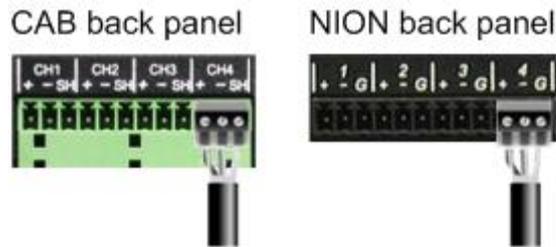


## Audio connections

Each audio connection on the CAB and NION products is a single, three-wire, balanced analog circuit. The connections are identical for both microphone, line input and line output connections. We recommend that audio connections are made with high quality shielded wire.

### Notes:

- As with any electronic connection, care should be taken to ensure that the termination is solid. There should be no stray wire strands, kinks or nicks in the wire jacket for a proper termination.
- Stranded wires should not be soldered. Solder will cold flow under the pressure of the screw terminal, causing a loose connection to develop over time.



Analog balanced audio connection using standard cable

Positive (+)  
 Negative (-)  
 Shield (SH)/Ground (G)

If you want to connect an unbalanced audio source to the CAB or NION, make the connections as shown in the table below.

Unbalanced input cable	CAB or NION input connector
Positive (+)	Positive (+)
GND	GND and negative (-)

### Serial connections

All CAB series products include a powerful feature that enables you to *bridge* serial data between CAB locations on the audio network. You can think of this as a kind of *sub-network* that travels across the audio network infrastructure independently of the audio data. This feature has many uses, but is primarily for transporting control data.

**Note:** Ensure that your termination is correctly installed and high quality shielded wire is used.

### Pin outs

The pin outs are detailed in the table below.

Pin	RS-232	RS-485	RS-422
Tx+	N/C	Data+	TxD+
Tx-	TxD	Data-	TxD-
Rx+	RxD	N/C	RxD+
Rx-	N/C	N/C	RxD-
SH	GND	GND	GND

## CAT 5e and CAT 6 connections

Category 5e and category 6 cables (commonly known as CAT 5e and CAT 6) are two wiring standards recommended for use with CobraNet networks.

Both cable types use a UTP (Unshielded Twisted Pair) configuration. CAT 5e cables typically use 24–26 AWG wire. CAT 6 cable tends to have slightly more copper in each cable, with standard gauges of 22–24 AWG. The cable is coupled to in-line RJ-45 connectors. As the conductor sizes are generally the same, CAT 6 jacks may also be used with CAT 5e cable. Special crimping tools are required to make the termination; these are widely available, as are the connectors.

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**Note:** A ratcheting type crimping tool is *highly* recommended. The use of non-ratcheting crimping tools, while occasionally adequate, typically results in considerably higher failure rates for field terminated connections.

---

There are stranded and solid varieties of CAT 5e and CAT 6 cable. The stranded form is more flexible and withstands more bending without breaking and is suited for reliable connections with insulation piercing connectors, but makes less reliable connections in insulation-displacement connectors (IDCs). The solid form is less expensive and makes reliable connections into insulation displacement connectors, but makes less reliable connections in insulation piercing connectors.

When used for 10/100/1000BASE-T, the maximum allowed length of a CAT 5e or CAT 6 cable is 100 meters or 328 feet. This consists of 90 meters (300 ft) of solid *horizontal* cabling between the patch panel and the wall jack, plus 10 meters (33 ft) of stranded patch cable between each jack and the attached device. Since stranded cable has higher attenuation than solid cable, exceeding 10 metres of patch cabling will reduce the permissible length of horizontal cable.

Different types of connectors are used with either type of wire. There is a *bent tine* connector intended for use with solid core wire, and an *aligned tine* connector for use with stranded cable. The bent tine connector will generally work on stranded wire, but not the other way around.

All cable types must be properly installed and terminated to meet specifications. The cable must not be kinked or bent too tightly (the bend radius should be at least four times the outer diameter of the cable). The wire pairs must not be untwisted and the outer jacket must not be stripped back more than 1/2 inch (1.27 cm).

There are two main standards for termination: T568A and T568B. For more information on the wiring for these standards, see *Wikipedia* ([http://en.wikipedia.org/wiki/T568A#T568A\\_and\\_T568B\\_termination](http://en.wikipedia.org/wiki/T568A#T568A_and_T568B_termination)).

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### Notes:

- A single CAT 5e or CAT6 cable run must not exceed 100 meters.
- Make sure your connector matches your cable type. If you are not sure, use the *bent tine* variety.
- When terminating CAT 5e or CAT6 cable, it is important that the natural twist of each pair is carried through as close as possible to the point of termination at the connector.
- We recommend that you familiarize yourself with the wiring color schemes so they are second nature to you. An error in the cabling of an Ethernet network is often the primary cause of system errors.

- It is very important that you build the cable with all pairs properly terminated. This will prevent any confusion later, and give your cable a solid mechanical connection.
  - The use of pre-made and pre-tested cabling can greatly simplify and expedite installation for wiring within a rack.
  - There are two main standards for termination: T568A and T568B. It is important that both ends of a cable are terminated in line with one of these standards and you do not use one standard for one end of the cable and the other for the other end. The cable will not function normally.
-

## Crossover cables

Normal network cables are designed to connect the CAB to a network switch only. You cannot use this type of cable to connect a CAB directly to a NION CM-1 card. For that you need a *crossover* cable.

A crossover cable is terminated the same way as a normal cable, except that the TX and RX pins are swapped at one end to allow the transmit pair of one device to connect to the receive pair of the other.

## Operating modes and redundancy

The CAB 8n supports a number of different operating modes, which are selected using the CAB 8n device in NWare. This section shows the physical connections that are required in each case.

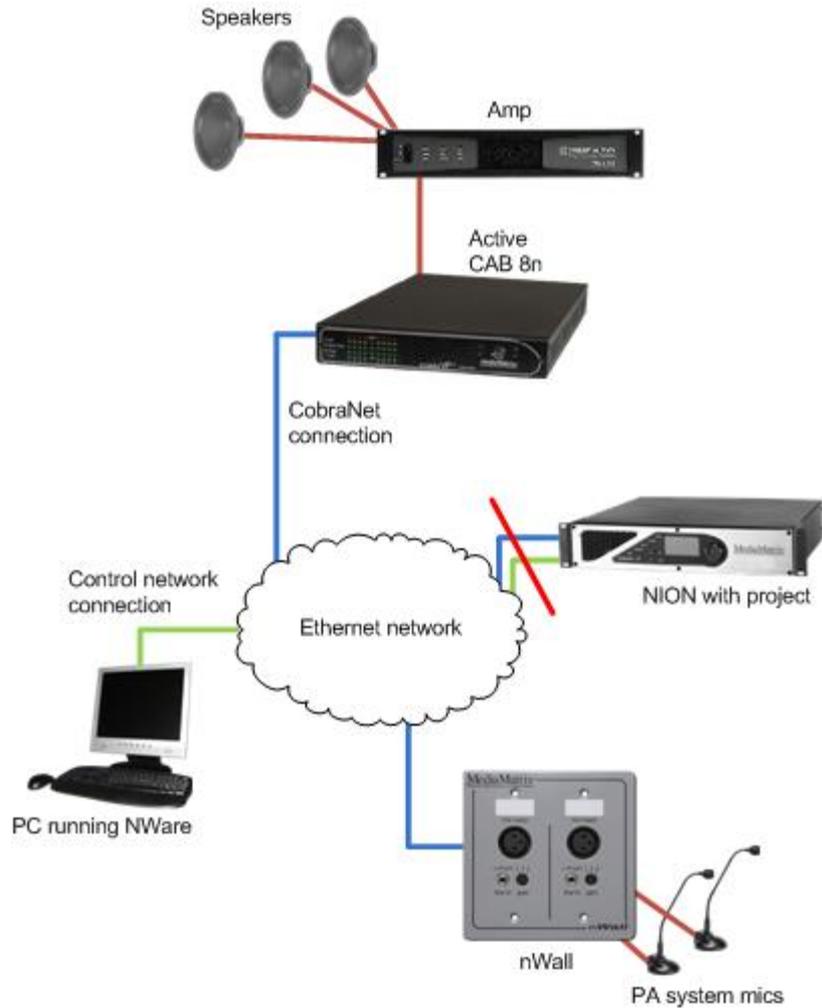
### Normal operating mode

In this mode, the CAB 8n communicates with the NION on the CobraNet network and a connection to the NION is required for the CAB to continue to operate.



### Standalone mode

In this mode, once the CAB 8n has been configured using NWare and the project has been deployed, the CAB 8n does not require a connection to a NION, nControl or nTouch 180 in order to send and receive audio data on the CobraNet network. Even when the CAB 8n is power cycled, it still continues to send and receive audio.



## Master/slave mode

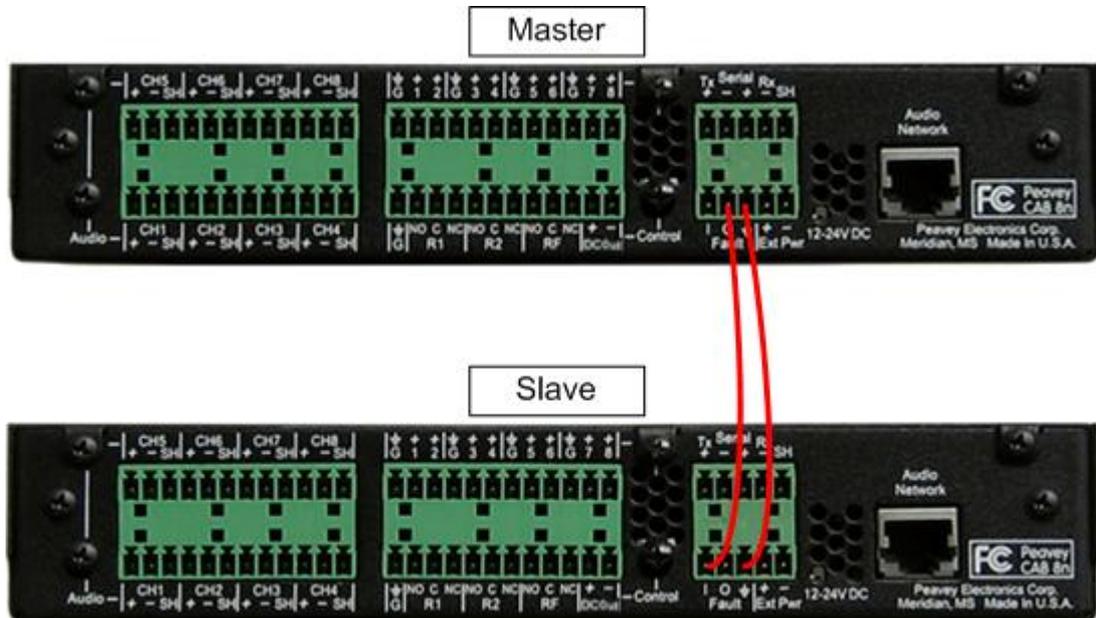
In this scenario, two CAB 8ns are connected to the CobraNet network and also connected together via the rear Fault IO connectors to provide a redundant system.



If a fault occurs on the master CAB, the slave will automatically take over and allow audio to continue to flow through the system.

The amplifier is wired to both CABs, so that when a switchover is made from the active to the standby unit, the interruption in audio output from the speakers is minimized.

The Fault connector on the rear of the CABs is wired up as follows: the *Failout* pin on the master unit is connected to the *failin* pin of the slave. The Failout pin of the slave is not connected.



**Note:** Do not connect the *Failout* pin of the slave to the master unit, as this will cause oscillations between the two units.

## Setting the Hardware ID

Once there is a physical connection to the network, you must assign a Hardware ID (also referred to as a base address) to the CAB. This is an important step in the installation procedure as the ID will be used to identify the unit on the network and allow audio to be passed through it.

**Tip:** The Hardware ID is also specified in NWare to allow communications between the CAB and its control panel (the yellow CAB 8n block ).

### ► To set the Hardware ID

1. Remove the screws from the CAB face plate to gain access to the hardware ID switches.

**Tip:** If you look carefully, there is a small arrow on each switch indicating the selected number.

2. Using a small Phillips screwdriver, carefully set each rotary switch to the desired number. You will feel a click as you move between digits.

A Hardware ID has 4 digits. Acceptable values are in hex and range from 0001 to 7FFF. From left to right, the four rotary switches represent your 4 digit Hardware ID.

**Caution:** Be careful not to damage a switch by using excessive force.

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**Note:** Each CAB on the network must have a unique Hardware ID.

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## Understanding gain structure

It is important to understand the basics of gain structure and how it relates specifically to the CAB. In most cases, the CAB is shipped from the factory with unity gain through the unit. In other words, if you introduce a 1.23VAC 1 kHz sine wave into the input channel of a CAB without adjusting any controls, you will get the same 1.23VAC sine wave on an output channel (when the signal paths are directly connected and without audio processing).

However, we recommend that unity gain settings are checked before testing the unit. The CAB is primarily intended for larger MediaMatrix systems, where a different gain structure set up may be required.

Adjusting the gain structure for the CAB is possible both at the analog and digital gain stages. All controls for adjusting the input and output gain stages can be found on the control surface of each CAB device in NWare. For more information, see *Adjusting the gain structure* in the *NWare User Guide*.

## What to do next

The CAB 8n is managed and configured using NWare. Refer to the section *Adding a CAB 8n to your design* in the *NWare User Guide* to see how to use a CAB 8n in your audio system design.



# Appendix A

## Reference Information

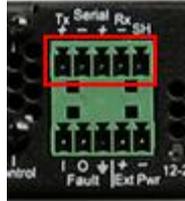
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## Serial communications

CAB 8n supports RS-232, RS-485 and RS-422 serial communications via a 5 pin connector on the rear of the unit.



The pin outs are detailed in the table below.

Pin	RS-232	RS-485	RS-422
Tx+	N/C	Data+	TxD+
Tx-	TxD	Data-	TxD-
Rx+	RxD	N/C	RxD+
Rx-	N/C	N/C	RxD-
SH	GND	GND	GND

Notes:

- Only one protocol can be used at any one time.
- The pin outs for each protocol are different.

## GPIO overview

NION and CAB products include a versatile GPIO (General Purpose Input Output) system at the rear for terminating external logic, controls, relays and other external systems. Each control pin is supported by NWare for configuration, control and monitoring. Any combination of control pins may be used simultaneously, regardless of the configuration.

---

**Caution:** The pin assignments for the GPIO ports on the NION and CAB devices are not the same. Please be sure to check the documentation carefully when connecting devices to the ports.

---

### Configurable general purpose ports (8 control pins)

These ports can be configured as follows:

Digital output	2.5V high level (LVTTL) short circuit current 1.4mA.
High current digital output	Voltage is as supplied by external DC power (Ext Pwr connector). Absolute max. current draw 0.5A per I/O. Total limited by external PSU.  Not available if using PoE.
Digital input	2.5V high level (LVTTL) with reverse voltage and transient protection.
Analog input	10-bit resolution, 12V full-scale, reverse voltage and transient protection.

### Contact closure circuits

Two user-controllable contact-closure circuits. Max voltage 30V DC, max current 1A.

One fault indicator contact closure circuit. Max voltage 30V DC, max current 1A.

### High current power output

Voltage is as supplied by external DC power (Ext Pwr connector). Absolute max. current draw 0.5A per I/O. Total limited by external PSU.

Not available if using PoE.

A ground pin is available on the left of the connector block if required.

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**Caution:** If the Ext Pwr connector is used, the voltage available via the DC supply output connector (marked DC Out) will be the same as the voltage supplied via the Ext Pwr connector. Equipment connected to the DC Out connector must be compatible with the supplied voltage.

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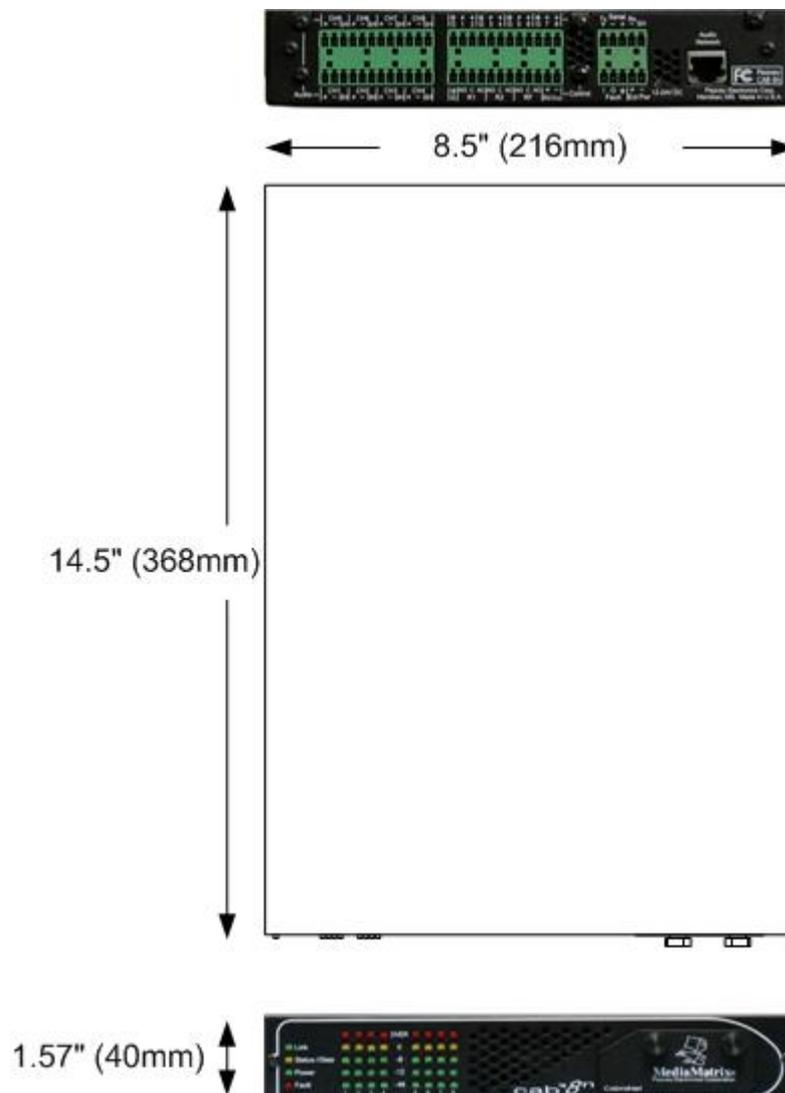
**Note:** The DC Out connector cannot be used when the CAB 8n is powered using PoE.

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## Technical specifications

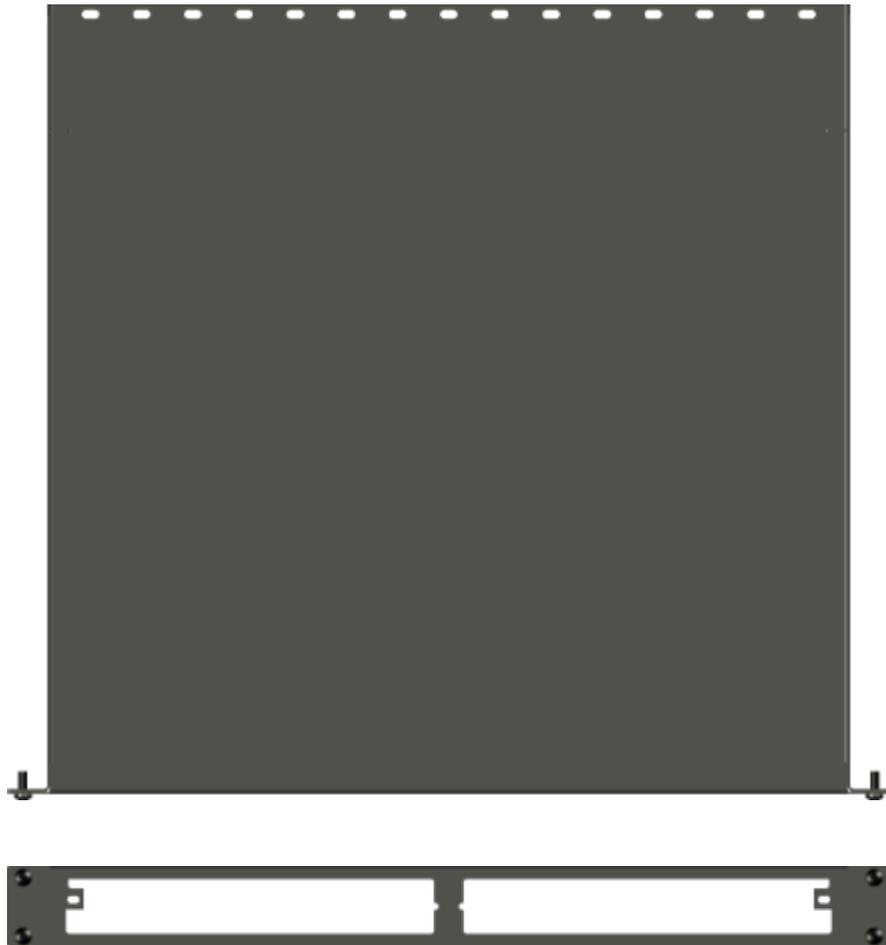
### Mechanical

Dimensions	8.5 in. (216 mm) W x 14.5 in. (368 mm) D x 1.57 in. (40 mm) H
Weight	5.03 lbs. (2.28kg)
Mounting	Mounting kit provided for installing either one or two CAB 8n units in a 1RU space.



## Mounting tray

Dimensions	17.28in. (439 mm) W x 14.23in. (361 mm) D x 1.72in. (44 mm) H Designed to fit two CABs side-by-side or a single CAB with a blanking plate.
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## Performance

ADC/DAC	48kHz sample rate; 24 bit resolution.
Frequency Response	+0/-0.3 at unity gain.
THD	$\leq 0.01\%$ mic, $\leq .006\%$ line in or out.
Input noise	$\leq -126$ dBu.
Input sensitivity	-48dBu to +24dBu
Input gain	0 to -96dB analog gain control
Dynamic range	(for inputs) $\geq 110$ dB
Output sensitivity	0dBu to 24dBu, 6dB step
Output gain	Analog gain control
Common Mode Rejection Ratio (CMRR)	(for inputs) $\geq 70$ dB
Crosstalk	$\leq 95$ dB
Input level	Up to 24 dBu
Output level	Up to 18 dBu
Input impedance	10k to 22k ohms is acceptable
Output impedance	100 ohms
Mic phantom	48V software selectable on or off. Phantom power is automatically disabled if I/O is configured as an output.

## General

A/D, D/A Quantization	16, 20 or 24 bit. Default is 20 bit.
Audio Transmission Quantization	On CobraNet: 16, 20 or 24-bit. Default is 20 bit.
Sample Rate (Fs)	48 kHz
Master Clock Speed (256 Fs)	24.576 MHz
Digital Audio Channels per unit	8 channels on CobraNet
Digital Audio Interface	CobraNet I/O: 100 BaseT Ethernet, Uses standard 8-conductor RJ-45 jack
Serial port	RS-232/EIA-485/EIA-422 port. One serial port capable of full duplex RS-232/EIA-485/EIA-422 serial communications or half duplex EIA-485 serial communications.
Fault/Failover ports	1 input, 1 output Phoenix connectors
Power consumption	PoE: max. 12.5W External DC supply: 20W (excluding high current outputs)
DC voltage	12V
DC line current	1.6A
Power Dissipation	To be confirmed.
Finish	Black powder coat, painted steel

## Front panel LEDs

Meter LED displays (numbered 1-4 and 5-8)	Meaning
Top line flashing	The unit is in boot loader mode but has no programme code to run.
All LEDs flashing on and off	The unit is in boot loader mode and has programme code which it can run.
LEDs changing in time to audio	Normal display mode for the unit. Each numbered column of LEDs represents the dB level of the corresponding channel.
LED column moving left to right	No NION is controlling this CAB.
LED row moving bottom to top	The unit is in test mode. This display is shown when the CAB is starting up.
Arrows moving left to right across LED bar	The unit is in standby mode. It has been connected to another CAB via the Fault connector at the rear of the unit.  When a unit is a slave in a master/slave configuration, this display is shown continuously. If a master unit fails, but is then subsequently available, this display will be shown momentarily before the master assumes control from the slave unit.
No LEDs lit	The unit is powered and connected to the CobraNet network, it has been assigned a hardware ID from NWare and is now being controlled by a NION. No audio is passing through the unit.

## Technical Support

When you require assistance with your product, you can get help from several sources. Apart from the online Knowledge Center, there are many technical documents, white papers and application notes on our website and on other websites on the Internet, covering subjects including Python programming, SNMP and serial control.

If you cannot find the information you require, contact your dealer or distributor. If you are still unable to solve the issue, you can contact us directly using the details below. MediaMatrix has an extensive Technical Services Group that provides technical support, repair and implementation services.

Peavey Electronics Corp.,  
MediaMatrix Division,  
5022 Hartley Peavey Drive,  
Meridian, MS 39305, USA.

Phone: 601.483.9548

Phone (toll free): 866.662.8750

Fax: 601.486.1678

Website: <http://mm.peavey.com> (<http://www.peaveycommercialaudio.com/>).



# Warranty statement

**MediaMatrix®**  
**PEAVEY ELECTRONICS CORPORATION**  
**DOMESTIC (USA) LIMITED WARRANTY**  
**Effective Date: May 1, 2005**

## What This Warranty Covers

This Warranty covers defects in material and workmanship in Peavey MediaMatrix products purchased and serviced in the United States of America (USA).

## What This Warranty Does Not Cover

The Warranty does not cover: (1) damage caused by accident, misuse, abuse, improper installation or operation, rental, product modification or neglect; (2) damage occurring during shipment; (3) damage caused by repair or service performed by persons not authorized by Peavey; (4) products on which the serial number has been altered, defaced or removed; (5) products not purchased from an Authorized MediaMatrix Integrator. This warranty does not cover associated costs incurred from servicing equipment, including, but not limited to, travel, jobsite-related costs, fabrication, freight, loaner equipment, installation, cabling or harnessing, mounting materials or other variable costs.

## Who This Warranty Protects

In applications where the product is sold *over the counter*, this Warranty protects the original retail purchaser. In applications where the product is part of an integrated system, and such system is warranted by the integrator as a complete assembly, this Warranty protects only the system integrator.

## What Peavey Will Do

We will repair or replace (at Peavey's discretion) products covered by warranty at no charge for labor or materials. If the product or component must be shipped to Peavey for warranty service, the consumer must pay initial shipping costs. If the repairs are covered by warranty, Peavey will pay the return shipping costs.

## How Long This Warranty Lasts

The Warranty begins on the date of purchase by the original retail purchaser or on the date received by the system integrator. (See *Who This Warranty Protects*, above). The duration of the Warranty varies by product as summarized below.

5 Years	MediaMatrix® DPU cards, NION™ Processing Nodes, CABs, I/O cards, Cinema Processors, Power Amplifiers, Pre-Amplifiers, Mixers, Electronic Filter Sets and Dynamics Processors.
1 Year	MM Series Cardframes, MF Series Cardframes, ControlMatrix™ Host Processors, Servers and Controllers, nControl, nTouch 180, nTouch 60, xControl LCDs, nWall, VCAT, VCAT-HD, VGA-2, VSC, D4S, D1V, Remote Control Panels, Plates, Paging Stations, Ambient Sense Devices and other devices installed in user-accessible locations.
90 Days	Loudspeaker Components (including speakers, baskets, drivers, diaphragm replacement kits and

passive filter networks.) and all Accessory Products

## How To Get Warranty Service

End Users: Take the defective product and your dated sales receipt or other proof of purchase to your Authorized MediaMatrix Systems Integrator or Authorized Peavey Service Center. System Integrators: Ship the defective product, prepaid, to Peavey Electronics Corporation, International Service Center, 412 Highway 11 & 80 East, Meridian, MS 39301, 601-483-5365. Include a detailed description of the problem, the name and location of the jobsite and a copy of your invoice as evidence of warranty coverage. Please include a complete return shipping address.

## Limitation of Implied Warranties

ANY IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE LENGTH OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

## Exclusions of Damages

PEAVEY'S LIABILITY FOR ANY DEFECTIVE PRODUCT IS LIMITED TO THE REPAIR OR REPLACEMENT OF THE PRODUCT, AT PEAVEY'S OPTION. IF WE ELECT TO REPLACE THE PRODUCT, THE REPLACEMENT MAY BE A RECONDITIONED UNIT. PEAVEY SHALL NOT BE LIABLE FOR DAMAGES BASED ON INCONVENIENCE, LOSS OF USE, LOST PROFITS, LOST SAVINGS, DAMAGE TO ANY OTHER EQUIPMENT OR OTHER ITEMS AT THE SITE OF USE, OR ANY OTHER DAMAGES WHETHER INCIDENTAL, CONSEQUENTIAL OR OTHERWISE, EVEN IF PEAVEY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If you have any questions about this warranty or service received, or if you need assistance in locating an Authorized Service Center, please contact the Peavey International Service Center at (601) 483-5365. Features and specifications subject to change without notice.

# MediaMatrix®

A Division of Peavey Electronics Corporation



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<http://www.peaveycommercialaudio.com/products.cfm/mm/>

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