

PRODUCT AND APPLICATIONS BULLETIN

FILE: Section 4 [Applications]

PRODUCTS: Nexia® SP - Speaker Processor DSP
MCA8150 - Multi-Channel Amplifier

APPLICATION: Auditorium with live mixing console and multiple speaker systems.

REQUIREMENTS:

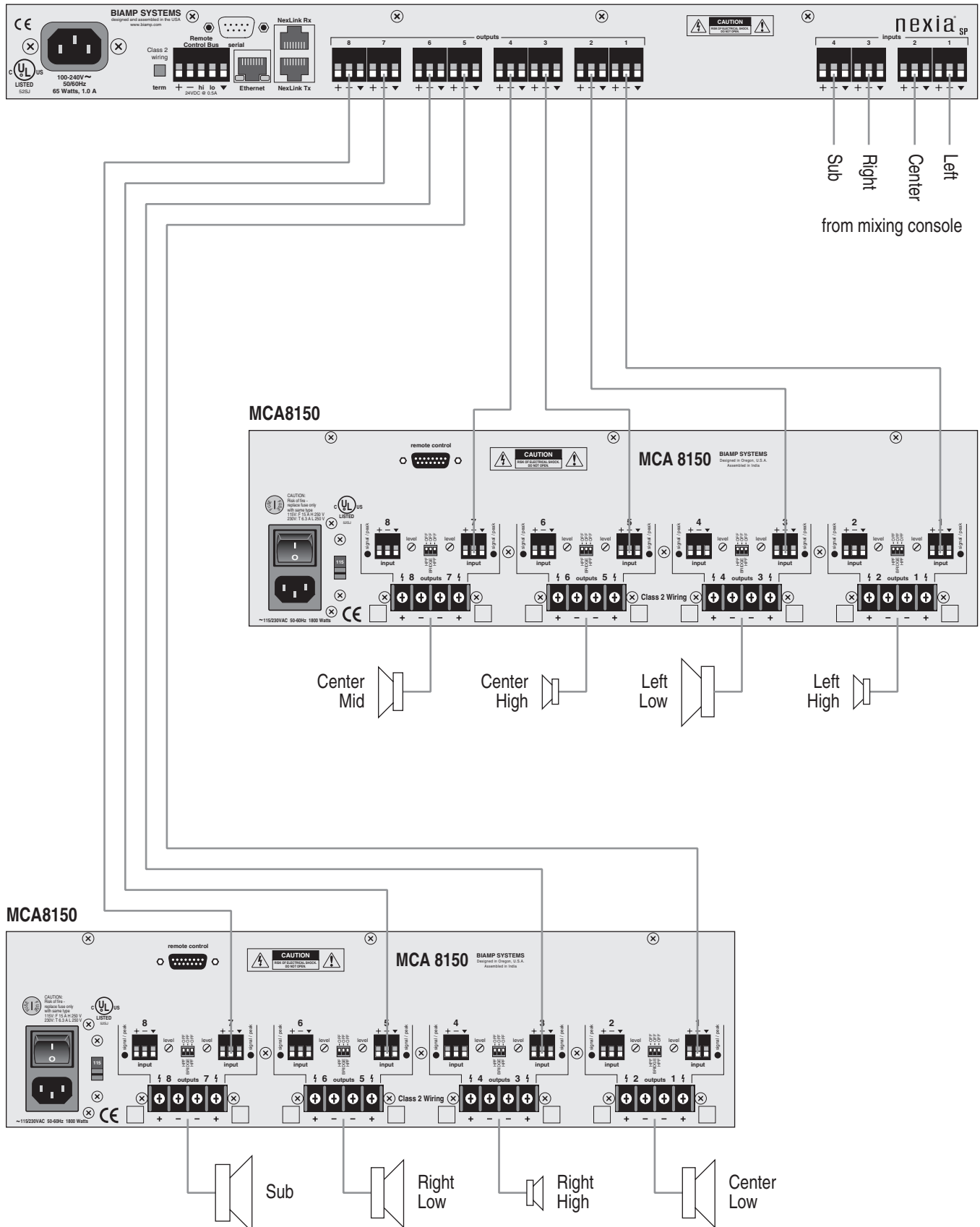
- Live mixing position with input from microphones and program sources
- Output processing for Left, Center, Right, and Sub-Woofer speaker systems
- Crossover functions for individual 2-way & 3-way speaker components

PRODUCT OVERVIEW:

Nexia SP is a digital signal processor with 4 line inputs and 8 independent line outputs. Intended for speaker processing requiring line inputs feeding a larger number of discrete outputs, Nexia CS includes a broad selection of audio components, routing options, and signal processing. The internal system design is completely user definable via PC software, and can be controlled via dedicated software screens, RS-232 control systems, and/or a variety of optional remote control devices. Multi-unit Nexia systems can be created utilizing Ethernet and NexLink digital audio linking.

MCA8150 eight-channel amplifiers provide 150 watts per channel. Channels may be bridged in pairs for higher combined wattage. Connections are provided for remote control of channel levels & muting. Internal transformers are available for 25/70/100V speaker systems.

NEXIA SP



APPLICATION EXAMPLE:

This application demonstrates the use of Nexia SP in a university auditorium. This is a stand-alone application using a single Nexia SP (*four inputs, eight outputs*). An example system diagram is shown on the opposite page, and a representative design layout is shown on the back page.

All system inputs (microphones, program sources, effects, etc.) are connected to a mixing console located in the auditorium. The console is used to mix these signals appropriately to four different outputs, which are intended as feeds to the Left, Center, Right, and Sub-Woofer speaker systems. These four output signals are then routed backstage, where they are connected to Inputs 1~4 of a Nexia SP. The Nexia SP provides all of the necessary processing and routing for the associated speaker systems, before feeding two MCA8150 power amplifiers located in the same equipment rack.

The first MCA8150 power amplifier has eight channels bridged in pairs, thereby providing four outputs of 300 watts each. Outputs of this MCA8150 are driving the Left High, Left Low, Center High, and Center Mid speakers. The second MCA8150 power amplifier also has eight channels which are bridged in pairs, providing four outputs of 300 watts each. These outputs are driving the Center Low, Right High, Right Low, and Sub-woofer speakers.

In the design layout, the Nexia SP is providing initial Parametric EQ (*3-Band*) for each of the Left, Center, and Right input signals coming from the mixing console. Then, each of these signals passes through a crossover. Left and Right signals each utilize a 2-Way Crossover, producing separate 'high' and 'low' frequency outputs for their corresponding speaker components. The Center signal employs a 3-Way Crossover to produce separate outputs for the 'high', 'mid', and 'low' frequency drivers. The Sub-woofer signal is provided with a simple Low Pass Filter, to remove the unnecessary higher frequencies.

Each of these eight separate signals then benefits from additional Parametric EQ (*3-band*), as well as comp/limiting to help manage maximum signal levels and provide speaker protection. Delays are also added at each output, for time alignment of the individual speaker components.

Peak Meters are connected to the four inputs and to the eight outputs, for monitoring of signal levels. Control Dialog Boxes for these meters can be minimized and labeled, creating a custom on-screen monitoring station. Control Dialog Boxes are also available for the other processing blocks within the design. This allows real-time software control of the system, and creation of a user control surface.

System control can be accessed simultaneously via a computer running Nexia software (Ethernet), third-party control systems such as AMX® or Crestron® (RS-232), and/or dedicated Nexia controls.

Various remote control options are available. *Volume 8*, *Select 8*, and *Volume/Select 8* rotary encoder panels may be used to provide volume adjustments and preset selections. A *Logic Box* would allow system control via external switches, or control of external equipment from the system itself.

