

## PRODUCT AND APPLICATIONS BULLETIN

**FILE:** Section 2 [Applications]

**PRODUCTS:** NEXIA™ CS - Conference System DSP  
Logic Box - Remote Control Bus Device  
CPA130 - Dual-Channel Amplifier  
DT-2A - 70V Distribution Transformer

**APPLICATION:** Courtroom with remote control, recording, and sidebar sound-masking.

### REQUIREMENTS:

- Sound reinforcement for microphones and evidence playback
- Dedicated signal routing to 4-track court recording system
- Remote control, including masking of sidebar conversations

### PRODUCT OVERVIEW:

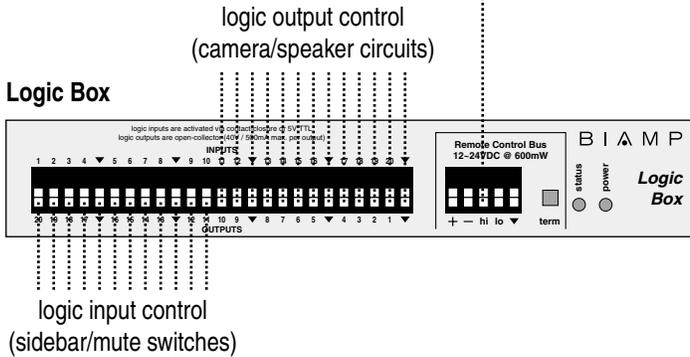
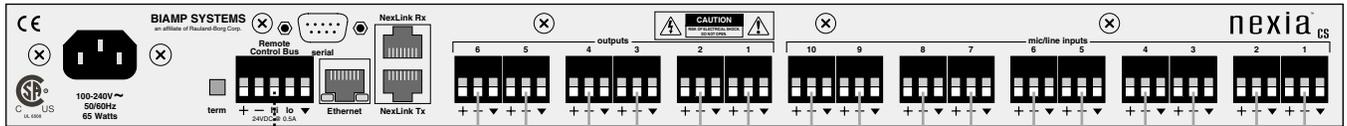
NEXIA CS is a digital signal processor with 10 mic/line inputs and 6 independent mix outputs. Intended for a variety of conferencing applications such as boardrooms, courtrooms, and council chambers, NEXIA CS includes a broad selection of audio components, routing options, and signal processing. The 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.

The Logic Box provides both logic input and logic output connections, as a programmable interface to NEXIA devices. Logic inputs allow creation of custom control panels, with completely programmable functions. Logic outputs allow NEXIA devices to provide programmable triggers to external circuits, such as status indicators, speaker relays, and pan/tilt/zoom cameras.

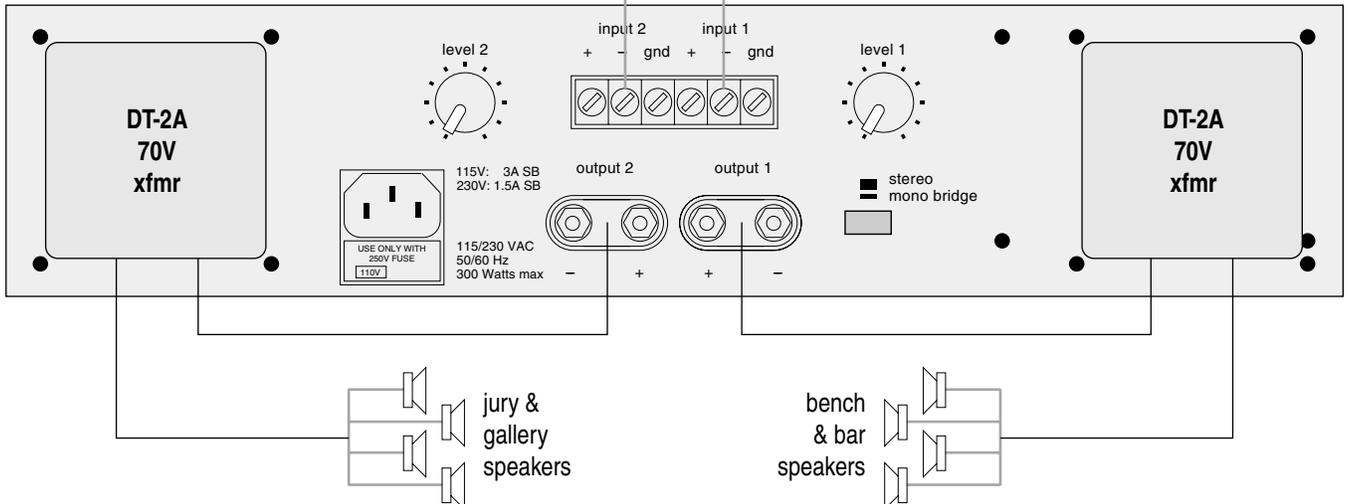
The CPA130 is a dual-channel, 65 Watt power amplifier designed for reliable service in permanent installations. CPA130 amplifiers have barrier strip input and 5-way binding post output connectors, short-circuit and thermal protection, and are passively cooled for quiet, maintenance-free operation.

The DT-2A is a 60 Watt autoformer for use in providing 25/70/100 Volt outputs for distributed speaker systems, from individual channels of the CPA130 power amplifier. The CPA130 provides rear panel mounting for two DT-2A autoformers.

## NEXIA CS



## CPA130



## APPLICATION EXAMPLE:

This application demonstrates NEXIA CS being used in a modern courtroom. This is a stand-alone application using a single NEXIA CS (*ten mic/line inputs, 6 mic/line outputs*). An example system diagram is shown on the opposite page, and a representative design layout is shown on the back page.

Eight microphones and two evidence playback sources are connected to inputs 1~10 of the NEXIA CS. In the system design file, these ten inputs are fed to both a Matrix Mixer (*10x4*) and an Auto Mixer (*10x1*). The Matrix Mixer simply routes input signals (non-gated) to the appropriate tracks of a court recording system. Levelers are applied at the Matrix Mixer outputs, to provide more consistent levels to the court recording system. NEXIA CS output reference levels are set to match inputs on the court recording system (mic or line level).

Main output from the Auto Mixer (*10x1*) is fed to a smaller Matrix Mixer (*2x2*), with a Pink Noise Generator connected to this Matrix Mixer as well. The Matrix Mixer (*2x2*) provides outputs for sound reinforcement in both the bench/bar and jury/gallery areas. These outputs receive leveling and equalization, to enhance intelligibility, before feeding a CPA130 dual-channel power amplifier. Each channel of the CPA130 has a DT-2A transformer installed for driving the 70V distributed speakers in these two areas.

A Logic Box, connected to the NEXIA CS Remote Control Bus, is also represented as a block in the system design file. The Logic Box block is connected to a Remote Preset block. This allows presets to be recalled via external switches, which are connected to logic inputs on the Logic Box. These presets are designed to include only the Matrix Mixer (*2x2*) and Parametric EQ blocks. Therefore, they can mute the sound reinforcement outputs (and add properly equalized noise masking during Sidebar conversations) without adversely affecting outputs to the court recording system.

The Logic Box block is also connected to the logic outputs of the Auto Mixer (*10x1*) block. This allows automatic gating of the microphone channels to control external circuits, which are triggered by logic outputs on the Logic Box. Logic outputs can be used to control speaker relays and/or camera selection.

In the design layout, each block has an associated Control Dialog box. Control Dialog Boxes are used to make specific adjustments within the individual blocks. Some examples are shown on the back page.

The Control Dialog Box for the **CS - Input 10 Channel** shows Inputs 1~8 as having approximate gain settings (and phantom power assignments) for condenser microphones, whereas Inputs 9 & 10 have less gain (and no phantom power assignment) for line-level input from evidence playback devices.

The Control Dialog Box for the **Matrix Mixer 10x4** shows proper input-to-track assignments for the court recording system: Judge, Sidebar, & Clerk mics to Track 1; Witness & Jury mics to Track 2; Defense, Prosecution, & Podium mics to Track 3; and Evidence Playback 1 & 2 to Track 4.

The Control Dialog Box for the **CS - Output 6 Channel** shows outputs 1~4 as having output level settings appropriate for a court recording system with microphone level inputs, and outputs 5 & 6 have line level settings appropriate for feeding the CPA130 power amplifier.

The Control Dialog Box for the **Matrix Mixer 2x2** shows settings specifically for the Sidebar preset, with Input 1 (Auto Mixer) turned off and Input 2 (Pink Noise) turned on to the Jury/Gallery output only.

Example NEXIA design (NEX file):

