

PRODUCT AND APPLICATIONS BULLETIN

FILE: Section 8 [Applications]

PRODUCTS: Nexia® PM – digital signal processor
Voltage Control Box – remote control interface
Logic Box – remote control interface
MCA8050 - multi-channel amplifier

APPLICATION: Multi-zone restaurant facility with background/foreground music and paging.

REQUIREMENTS:

- Background music in dining area, with foreground music and paging in lounge
- Dedicated output for patio area, providing background music plus paging
- Remote controls for volume adjustment and source selection within each area

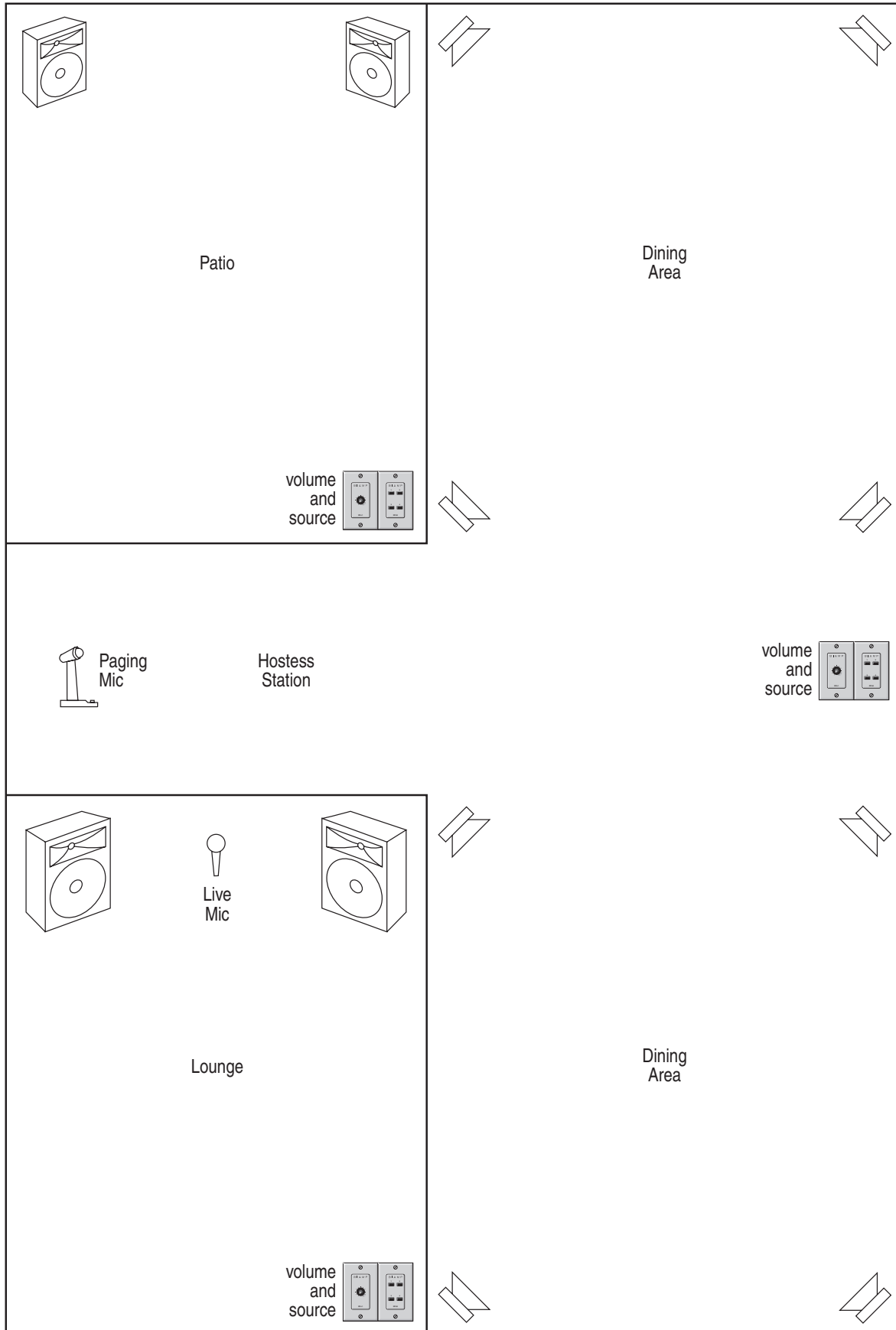
PRODUCT OVERVIEW:

Nexia PM is a digital signal processor with 4 mic/line inputs, 6 stereo line inputs, and 6 line outputs. Intended for multi-media presentation applications requiring both microphone and program content, Nexia PM 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.

Voltage Control Box provides four inputs for analog potentiometers plus four logic connections, as a programmable control interface to Nexia. Voltage Control Box allows creation of custom control panels, with completely programmable functions. Potentiometers may be assigned to control various system levels. Logic connections may be assigned individually as either inputs or outputs.

Logic Box provides both logic inputs and outputs, as a programmable control interface. Logic inputs allow creation of custom control panels, with completely programmable functions. Logic outputs allow the system to provide programmable triggers to external circuits, such as status indicators and speaker relays. Innovative design allows 20 available connections on the Logic Box to be configured in any combination of inputs and outputs.

The MCA8050 is an 8-channel amplifier, providing 50 watts of power per channel into a 4 ohm load. Remote level control connections are provided, and channels may be bridged in pairs for more power.



APPLICATION EXAMPLE:

This application represents a restaurant with a variety of music and paging requirements in separate areas. To the left is a simplified diagram of the restaurant layout, and system diagrams can be found on the back page. The system is intended to provide source selection and volume adjustment of 'background' music in the Dining area. The Lounge area also requires selection and volume adjustment, but from a different set of 'foreground' music sources. Additionally, paging from the Hostess Station must be routed to the Lounge, but not to the Dining area. The Patio area has volume adjustment as well, but is configurable to provide the same music as appears in either the Dining area or Lounge (*with or without paging*). A microphone input in the Lounge can be activated on occasions when 'live' music has been scheduled. These 'live' performances may also be routed to Dining or Patio areas, as desired.

A Nexia PM receives stereo inputs from six music sources: music service channels 1~3, a CD player, a cassette tape player, and an AM/FM tuner. Mic/line inputs 1 & 2 are employed for the Hostess paging microphone and the Lounge live performance microphone. A seventh stereo input, from a jukebox, is connected to mic/line inputs 3 & 4. The Nexia PM outputs are connected to corresponding channels of an MCA8050 multi-channel amplifier. MCA8050 channels 1 & 2 include internally installed TDT50 transformers, providing 50 Watts each to the distributed 70 Volt Dining area speakers. Channels 3/4 and 5/6 are 'bridged' in pairs to deliver greater power (*100 Watts*) for each of the larger 'foreground' speakers in the Lounge. Channels 7 & 8 are used to power a pair of speakers in the Patio area.

For the desired control of the system, the following connections and programming are implemented:

An RP-L1 panel is mounted in each of the areas, and is connected to a Voltage Control Box, as a control interface to the Nexia PM. This allows each RP-L1 to be programmed as a music volume control for the *stereo* speakers in the associated area. An RP-S4 panel is also mounted in each area, and is connected to a Logic Box, also as a control interface to the Nexia PM. The RP-S4 switches, set for 'momentary' and 'normally-closed' operation, are programmed to recall source selection presets for the respective areas. In the Nexia PM design, presets are created that affect only Router blocks associated with each task.

Dining area 'background' music selection (*via Dining Router 6x2*) includes the three music service channels. A fourth selection (*via Mic Router 3x2*) allows 'background' music to be muted, and 'live' music from the Lounge area to be heard. When 'live' music is not present in the Lounge, that microphone input can instead be used for events within the Dining area. Lounge 'foreground' music selection (*via Lounge Router 6x2*) includes CD, tape, or tuner, with a jukebox relay (*wired to Logic Box*) overriding the other three selections (*via Jukebox Router 4x2*). Selecting the 'live' microphone (*via Mic Router 3x2*) mutes all other 'foreground' sources, including the jukebox. The Patio is different in that it receives music from either the Dining area or Lounge, with or without paging (*via Patio Router 6x2*).

The Hostess paging microphone includes a push-to-talk switch (*wired to Logic Box*), which selects presets that mute/un-mute the microphone signal (*at the PM – Input 4 Channel block*). The microphone signal then passes through a Leveler, to maintain consistent paging volume, and enters two Duckers. The Duckers mix the paging signal to both (*left & right*) Dining outputs, while providing graceful automatic attenuation of the stereo 'background' music signals. Two-channel 'ganged' Level Control blocks are strategically placed (*and assigned to the Voltage Control Box and RP-L1 panels*) so as to provide coordinated control of both left and right program signals, with no affect on paging volume.

