MODEL 500D

ZONE OUTPUT CARD

GENERAL PROCEDURE

» **BEFORE REMOVING OR INSERTING CIRCUIT CARDS, TURN OFF POWER TO THE MAINFRAME. FAILURE TO DO SO MAY RESULT IN DAMAGE TO THE CARDS AND WILL VOID THE WARRANTY.**

Installation of the 500D Zone Output card consists of four steps:

1. Check and/or set the address
2. Plug the 500D card in to its proper slot in the 500M/500ME mainframe. Be sure that the component side of the 500D card faces left as seen from the front of the mainframe.
3. Connect the Audio Bus ribbon cable to J1, its mating connector on the 500D card
4. If using the 500JT, connect the Background Music ribbon cable to J2 and to the mating connector on the 500JT.

ADDRESS

Given that all the cards are plugged into the same control bus, the address is the scheme by which the computer identifies the 500D with which it wishes to communicate. The address range is 0 to 127. There is no conflict between the addresses for the 500D and other cards in the system, but each 500D card must have a unique address. To avoid confusion and possible errors, addresses are factory preset consecutively from 0 to the total number of 500D cards minus 1. Addresses are selected using the jumper array, J3, located near the lower left corner of Figure 2. Each jumper position is marked with a value adjacent to it on the printed circuit board (see the magnified view on the left side of the drawing). These values are 1, 2, 4, 8, 16, 32, and 64. In the magnified view, jumpers are shown in positions 1, 2, and 8. The address would be:

$$1 + 2 + 8 = 11$$

CORRECT SLOT

Systems are configured at the factory with the 500D cards grouped. The 500D card with address 0 is assigned to the first slot on the left side of the group. Addresses for addi-

IED®
Innovative Electronic Designs

tional 500D cards progress in sequence to the right. 500D card slots must always be associated with 500GT boards on the rear of the 500M/500ME Mainframe.

If a 500D card is replaced for any reason, the address of the new card must be set to the same value as the card which was removed. If the address is not known, it can easily be determined by subtracting 1 from the slot number.

AUDIO BUS CONNECTION

Audio bus connection is made via ribbon cable with connectors which mate with J1 and corresponding connectors on other cards of the system. Refer to Figure 3 for J1 pin connections and Figure 2 for the connector location.

BACKGROUND MUSIC INPUT AND CONTROL

Direct inputs and external controls for Background Music are available through J2. Refer to figure 4 for J2 pin connections. If they are used, it is recommended that the optional 510JT or 500JT Background Music Control Terminal Strip be installed. The 510JT and 500JT are connected to J2 by a ribbon cable, and provide individual screw terminal connections for the direct background music inputs and the external background music level controls. See figure 2 for the location of the ribbon cable connector on the 500D Card.

The jumpers(J1 - J8) on the 510JT are used to enable each RJ45 audio input. Install a jumper across these pins to enable the remote audio from the 510BGM Background Music Module.

Connectors SC1 and SC2 may be used to connect one remote audio source to multiple audio zones. See figure 8 for an example of how to accomplish this.

The 510BGM Background Music Interface Modulemay be placed up to 1,000 feet from the equipment room. This unit is powered through the 500ACS via the 510JT's RJ45 connectors.

LED INDICATORS

Each 500D card has 8 green LEDs near the bottom of the front edge. One is for each zone. The LEDs are arranged in order starting with 1 at the top. A LED lit means that the zone is currently being used for an announcement or a message.

LEVEL CONTROLS

Each 500D card **shipped before 9/02** has 8 independent announcement or message level controls, one for each zone. They are located near the front edge of the card, about one-third of the way up from the bottom. See figure 2 for their location on the card. They are arranged in order, with the control for zone 1 being closest to the bottom, and zone 8 closest to the top.

Each 500D card also has 8 independent background music level controls. they are located behind the announcement/message level controls, with the control for zone 1 being closest to the bottom, and the control for zone 8 closest to the top. See figure 2 for their location on the card.

Both sets of controls are mounted so that they are accessible from the front of the card when it is in place and operating. All are preset at the factory to maximum output.

BACKGROUND MUSIC SELECTION

The background music selection array as shown in Figure 1 below corresponds to the array in Figure 2. It is used to select either background music from the bus or a direct

A	B	C	D	E	F	G	H	I	J	S1
	A	B	C	D	E	F	G	H		S2
	A	B	C	D	E	F	G	H		S3

Figure 1 - Background Music Selection Array

background music input for each zone. Only one source may be selected for each zone.

To use background music from the bus, a 100 Ω resistor must be installed from S1A to the terminal for each desired zone, S1C — S1J. This may be accomplished most easily by using an 8 resistor SIP network which has a common terminal. To omit zones, clip the corresponding leads. See Table 1 below for placement of resistors.

To use a direct background music input, a 100 Ω resistor must be plugged into the terminal pair corresponding to that zone. The terminal pairs are adjacent in the same row, and may be identified from the Table 2 below.

IED®
Innovative Electronic Designs

TERMINAL	CONNECTION
S1A	BACKGROUND MUSIC BUS
S1B	NO CONNECTION
S1C	BACKGROUND MUSIC TO ZONE 1
S1D	BACKGROUND MUSIC TO ZONE 2
S1E	BACKGROUND MUSIC TO ZONE 3
S1F	BACKGROUND MUSIC TO ZONE 4
S1G	BACKGROUND MUSIC TO ZONE 5
S1H	BACKGROUND MUSIC TO ZONE 6
S1I	BACKGROUND MUSIC TO ZONE 7
S1J	BACKGROUND MUSIC TO ZONE 8

Table 1 - Resistor placement for background music from bus

TO FEED ZONE	CONNECT RESISTOR BETWEEN
1	S2A — S2B
2	S3A — S3B
3	S2C — S2D
4	S3C — S3D
5	S2E — S2F
6	S3E — S3F
7	S2G — S2H
8	S3G — S3H

Table 2 - Resistor placement for direct background music input

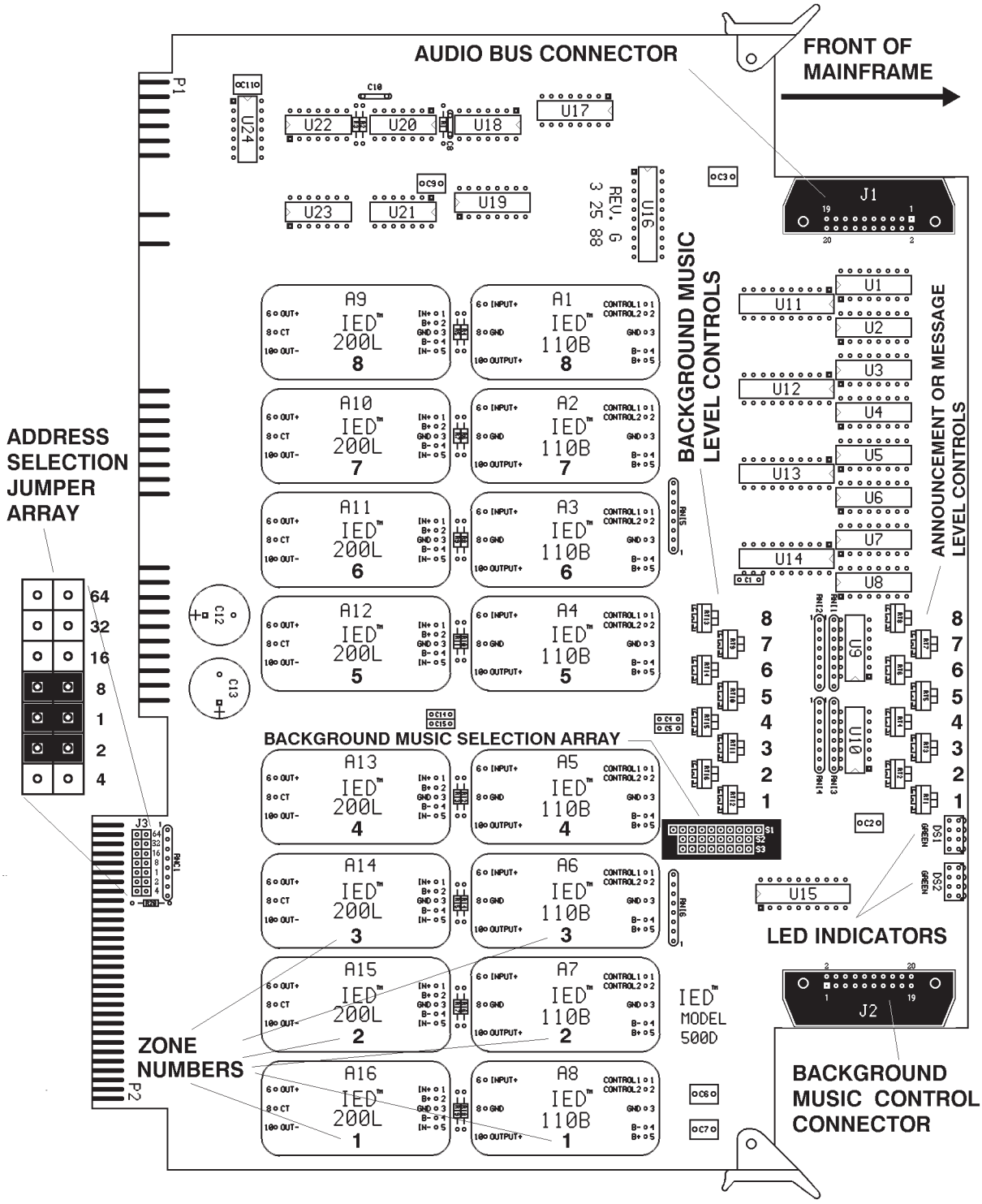
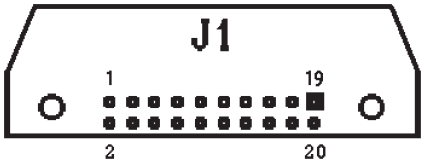


Figure 2 - 500D card showing location of connectors and controls

AUDIO BUS CONNECTOR

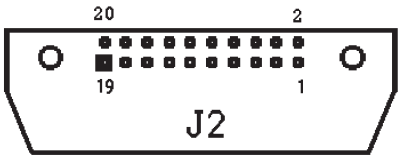


VIEWED FROM SOLDER SIDE
OF CIRCUIT BOARD

1. Test Tone Bus	2. Bkg Mus Bus
3. Gnd	4. Audio Bus #1
5. Gnd	6. Audio Bus #2
7. Gnd	8. Audio Bus #3
9. Gnd	10. Audio Bus #4
11. Gnd	12. Audio Bus #5
13. Gnd	14. Audio Bus #6
15. Gnd	16. Audio Bus #7
17. Gnd	18. Audio Bus #8
19. Gnd	20. Gnd

Figure 3 - 500D audio bus connector, J1 Pin connections

BACKGROUND MUSIC
CONTROL CONNECTOR



VIEWED FROM SOLDER SIDE
OF CIRCUIT BOARD

1. Dir B/M In Zn 4	2. Dir B/M In Zn 5
3. Dir B/M In Zn 3	4. Dir B/M In Zn 6
5. Dir B/M In Zn 2	6. Dir B/M In Zn 7
7. Dir B/M In Zn 1	8. Dir B/M In Zn 8
9. Ext Cntrl Zn 5	10. Ext Cntrl Zn 4
11. Ext Cntrl Zn 6	12. Ext Cntrl Zn 3
13. Ext Cntrl Zn 7	14. Ext Cntrl Zn 2
15. Ext Cntrl Zn 8	16. Ext Cntrl Zn 1
17. -15 VDC	18. -15 VDC
19. Gnd	20. Gnd

Figure 4 - 500D background music control connector, J2

WIRING

The 500D Cards must always be plugged into slots with 500GT rear terminal strips. Refer to Figure 5 for typical wiring between 500GT rear terminal strips and external audio devices.

The 500JT Background Music Control strips provide the necessary connections for direct background music input to each zone and for the connection of a control to adjust the level of the background music remotely. Refer to figure 6 for typical wiring between the 500JT, the 500D Zone Output Cards, the background music sources, and the remote background music level controls. Refer to figure 7 for typical wiring between the 510JT, the 500D Zone Output Cards, the background music sources, and the remote 510BGM units.

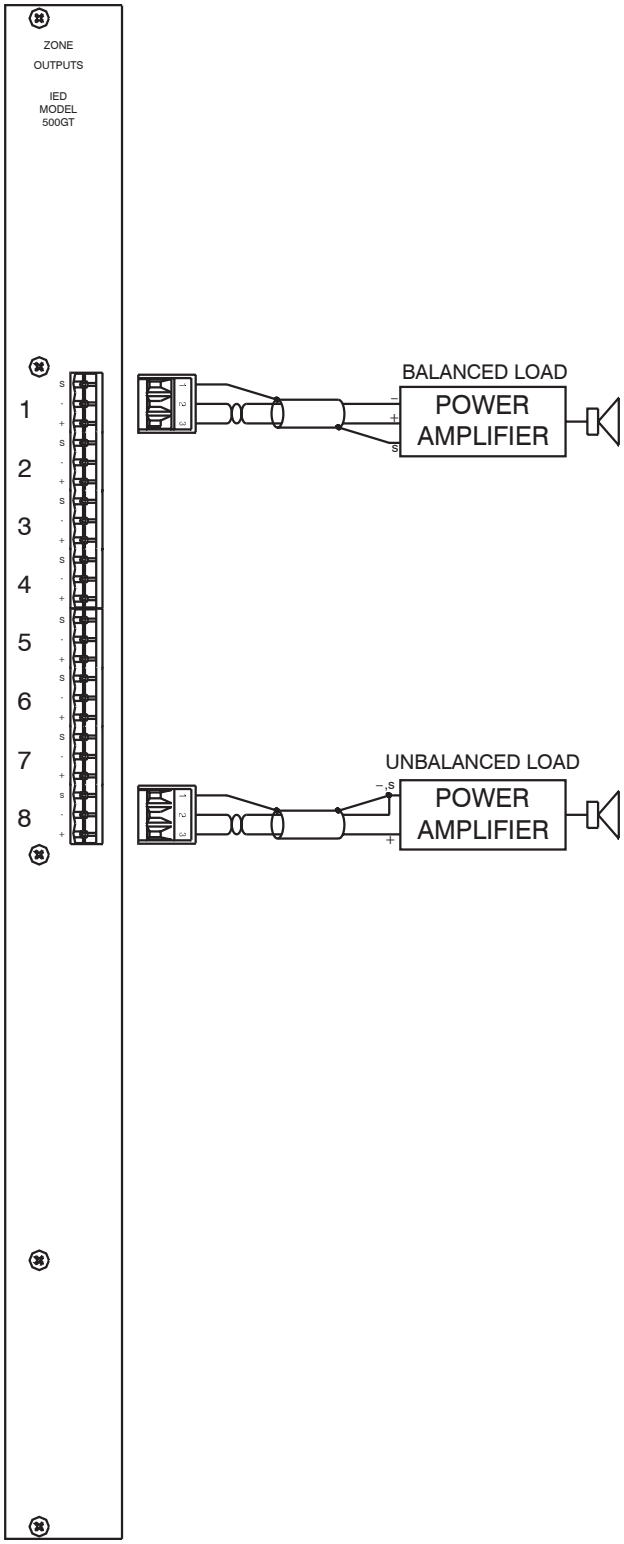


Figure 5 - Typical 500GT connections to balanced and unbalanced loads

Innovative Electronic Designs, Inc. • 9701 Taylorsville Road • Louisville, Kentucky 40299 • USA
Phone: (502) 267-7436 • Fax: (502) 267-9070 • Internet: http://www.iedaudio.com

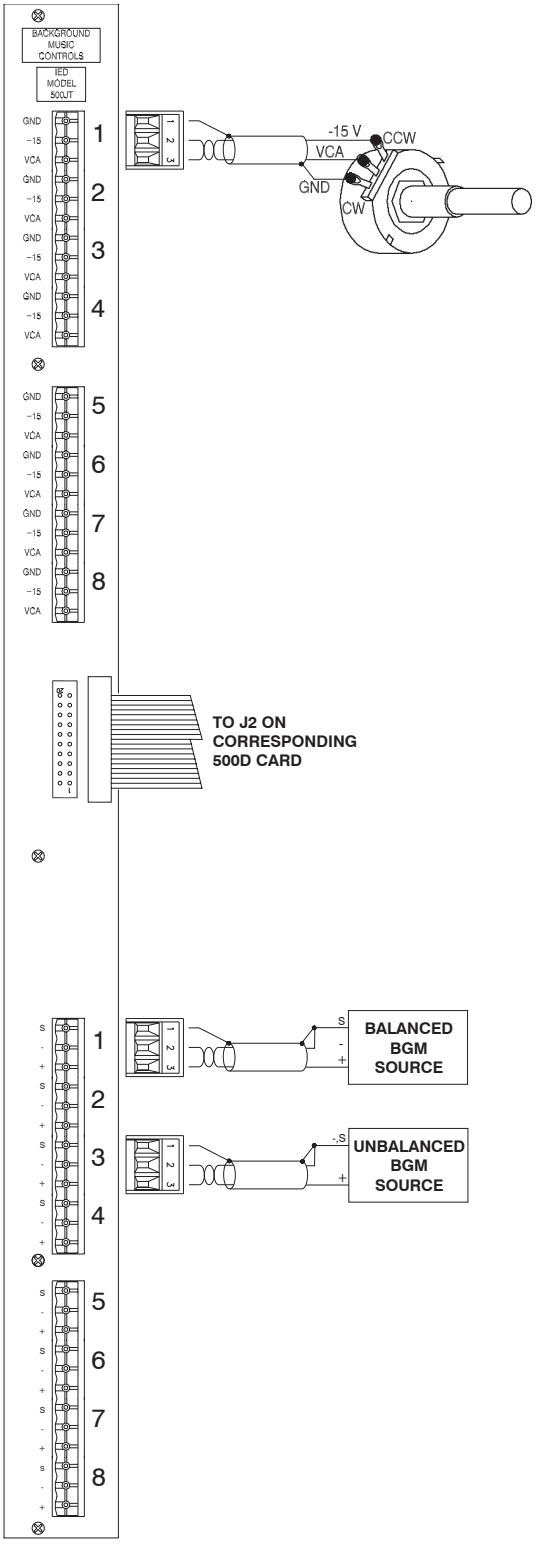
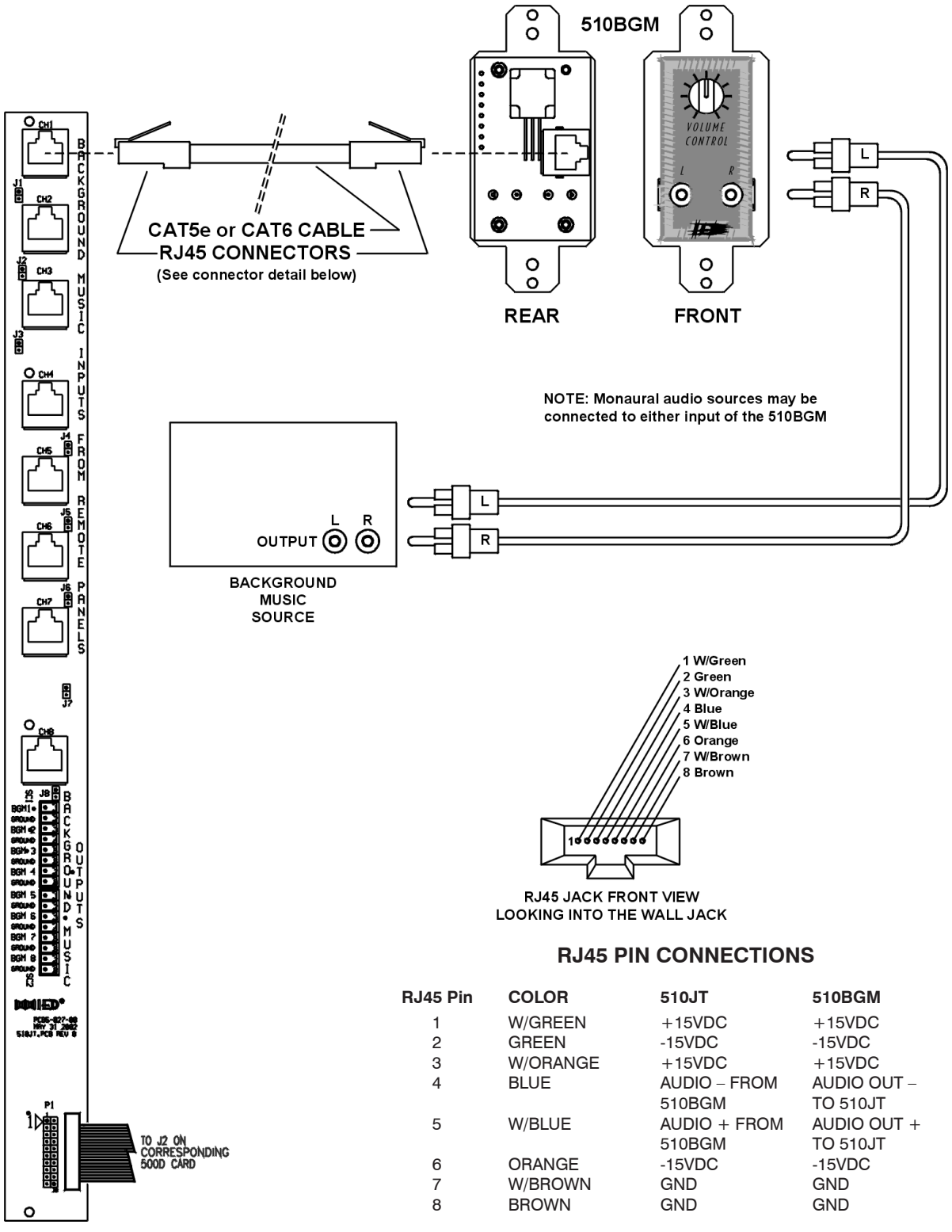


Figure 6 - Typical 500JT connections to background music inputs, 500D Zone Output Cards, and background music cards



RJ45 PIN CONNECTIONS

RJ45 Pin	COLOR	510JT	510BGM
1	W/GREEN	+15VDC	+15VDC
2	GREEN	-15VDC	-15VDC
3	W/ORANGE	+15VDC	+15VDC
4	BLUE	AUDIO – FROM 510BGM	AUDIO OUT – TO 510JT
5	W/BLUE	AUDIO + FROM 510BGM	AUDIO OUT + TO 510JT
6	ORANGE	-15VDC	-15VDC
7	W/BROWN	GND	GND
8	BROWN	GND	GND

Figure 7 - Typical 510JT connections to background music inputs, 500D Zone Output Cards, and background music sources

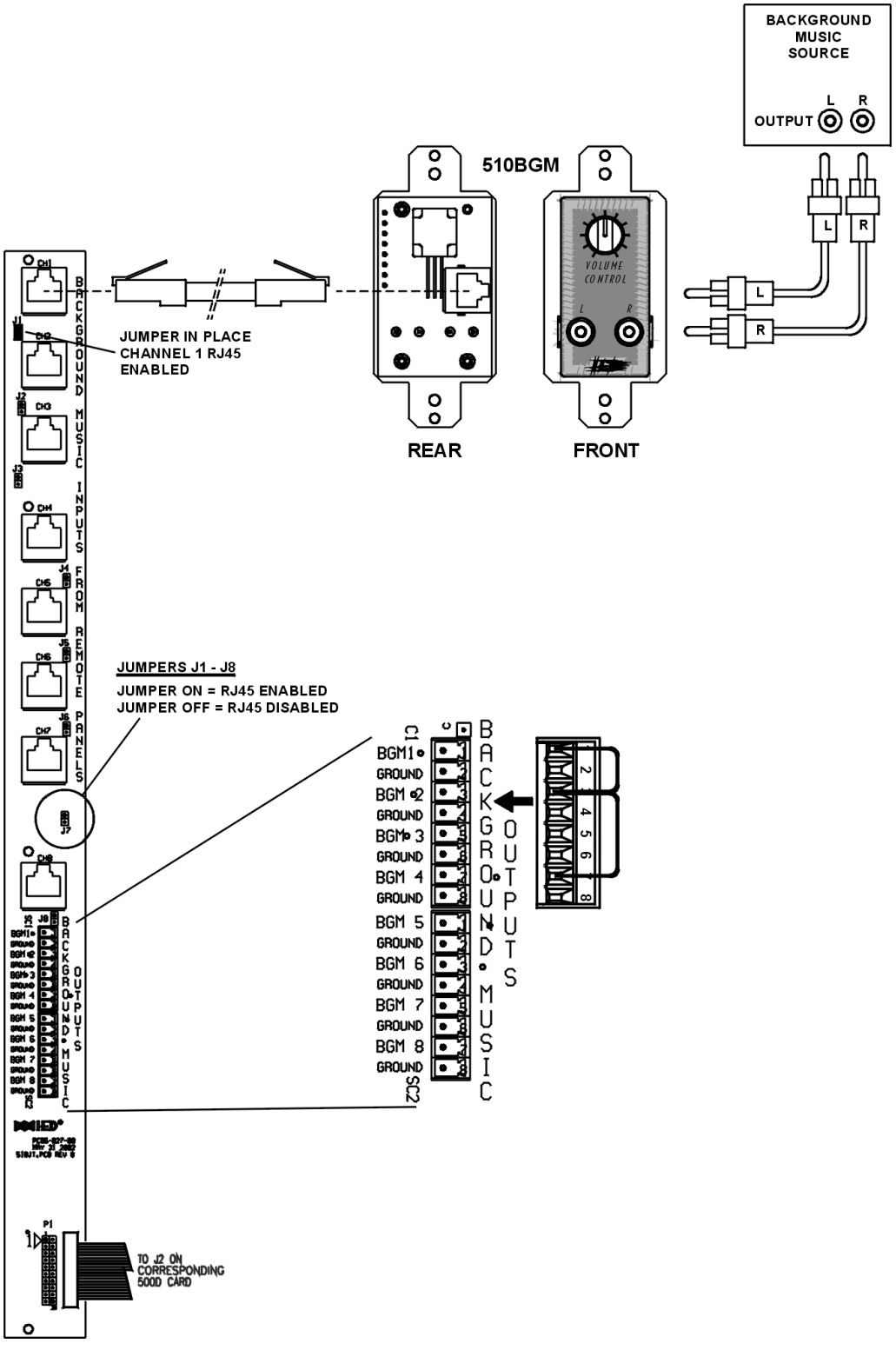


Figure 8 - The example above shows the remote Background Music Source connecting to zones 1, 2, and 4.

This page left blank intentionally

Innovative Electronic Designs, Inc. • 9701 Taylorsville Road • Louisville, Kentucky 40299 • USA
Phone: (502) 267-7436 • Fax: (502) 267-9070 • Internet: http://www.iedaudio.com