INSTALLATION INSTRUCTIONS

MicroComm DXI

AOB-100/400 Audio Output Board

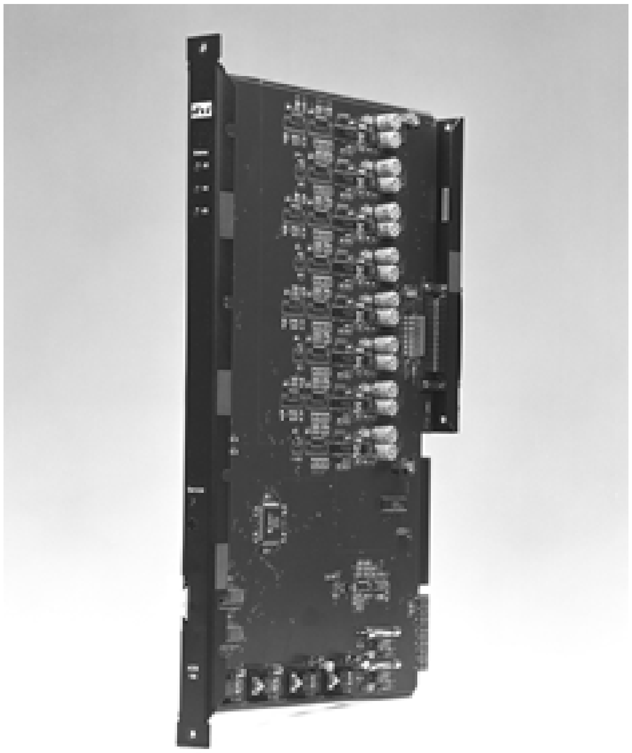
1. Intent & Scope

This document describes the installation procedure for the AOB-100 and AOB-400 Audio Output Board.

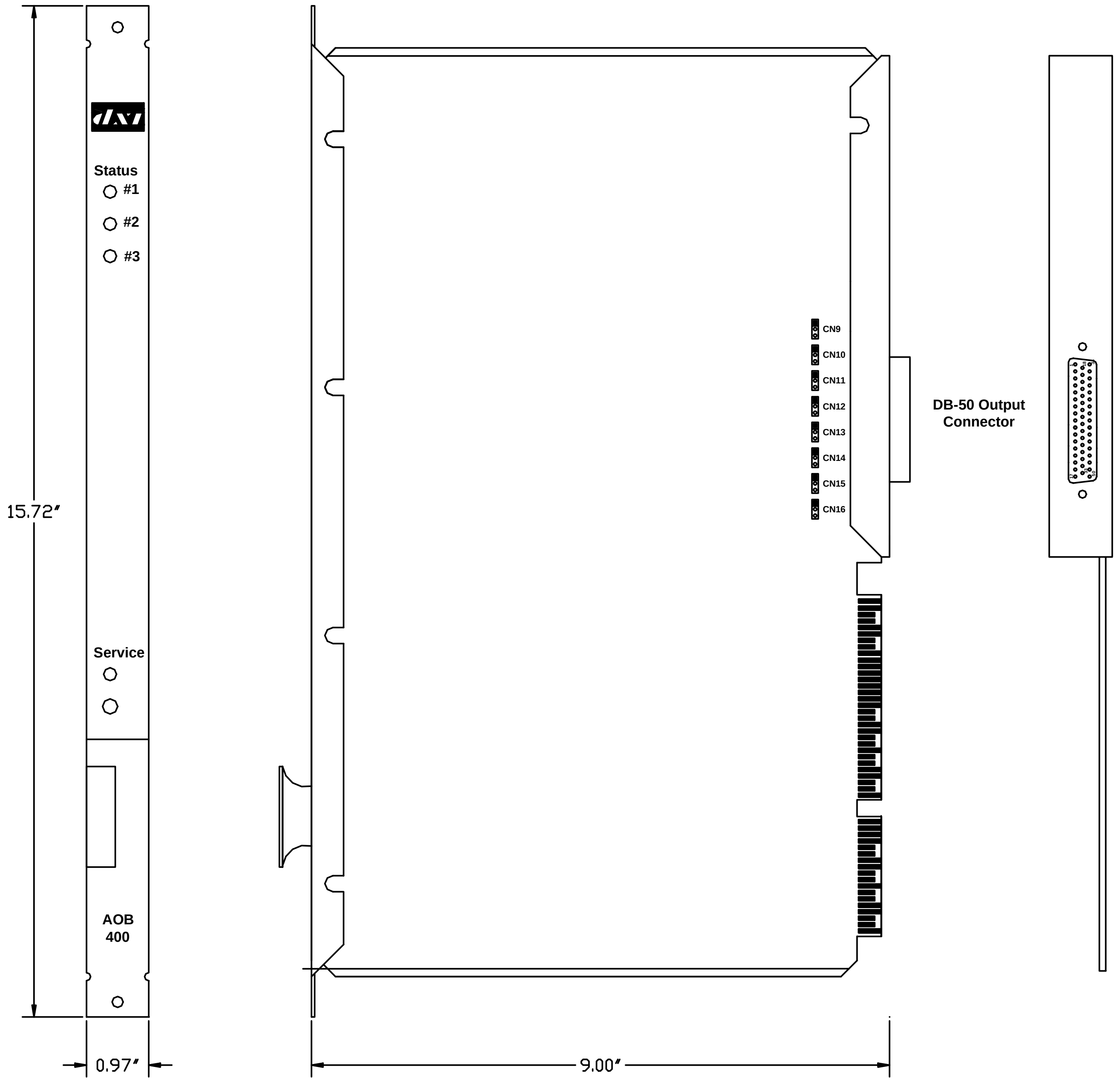
2. Description

The AOB-100/400 Audio Output Board provides up to eight external audio outputs. The output signals can be connected to auxiliary audio equipment such as: tape recorders, amplifiers, monitoring devices, two-way radios, etc. Level adjustment of the output signals is software controlled. The AOB-100 is used in systems that use SAB-100 Station Audio Boards, while the AOB-400 is used in systems that use either the SAB-300, SAB-400 or SAB-401 Station Audio Boards.

Each output channel is provided with an input control signal interface and a pair of relay contact outputs. A low resistance connection between the input control signal interface terminal and ground will tri-state (disable) the audio output. The relay contacts can be configured to act as normally open or normally closed contacts.



AOB-100



AOB-400 Showing DB-50 Connector and Location of CN9 ... CN16

3. Audio Output Channels

Each output channel consists of:

two audio output terminals and a shield terminal (connected to Gnd)

one disable input terminal (used with a common ground Gnd on pins 49 and 50 of the terminal block, or the audio shield)

two terminals that provide either a normally open or a normally closed relay output

3.1 Audio Output

Each audio output of the AOB can be configured by the system software to drive several different inputs, these include;

line level inputs, 1 V peak into a high impedance load (>10K ohms), from a low impedance source (< 1K ohm)

telephone inputs (600 ohm load from a 600 ohm source),

radio system interface (balanced 600 ohm)

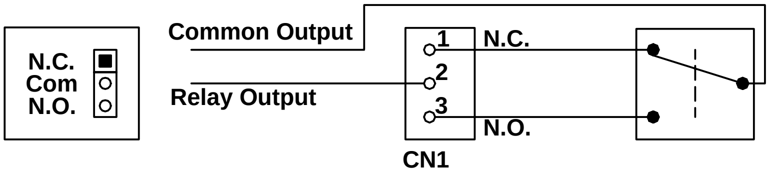
The output level can be adjusted by setting the parameter Initial Volume in the software configuration for the station.

3.2 Disable Input

The Disable Input associated with the output channel is activated by connecting a low resistance between the disable-input terminal and ground (Gnd). The Gnd connection can be made to the audio shield ground or the common ground on pins 49 or 50 on the terminal block). Any resistance value less than 2.4 K ohms will be detected as a logical '0' input signal, while any resistance value greater than 200 K ohms will be detected as a logical '1' signal. A logical '0' input will disable the audio output, and put the output into a high impedance state.

3.3 Relay Outputs

With each channel, a two terminal relay output is available. Using a jumper, the relay output can be configured to act as either a normally open or a normally closed contact. Each channel can be configured independently. The header CN8 is associated with Relay Output 1, CN9 with Relay Output 2 ... CN16 with Relay Output 8. The following diagram shows the position of the two terminal jumper for the two possible output configurations. Connecting a jumper between pin 2 and pin 3 of the CNX (X=9 ... 16) connector makes a normally open contact output. Connecting a jumper between pin 2 and 1 makes a normally closed contact output. (The diagram on the left is on the printed circuit board and indicates the jumper position for the normally open or normally closed configuration.)



Relay - Showing Jumper Positions for Normally Open or Normally Closed Output

4. Field Interface Cable

The Audio Output Board requires a CBL-120 cable to connect from the board's DB-50 connector to the terminal block. The terminal block serves as the interface to the field wiring. The CBL-120 cable incorporates two 4 pair shielded twisted pair audio cables plus two 6 pair unshielded cables. The shield at the other the end of the audio line should be left open. The fielding wire should be less than 2500 feet (750 meters).

The DB-50 female connector is located at the rear of the AOB-100/400. The connector position is shown on the figure on page 2.

The table on the next page gives, for a CBL-120 cable, the pin numbers, wire colors, and terminal block position for each of the audio output, control signal and status signals. The cable should be terminated at the terminal block in the fashion shown on the next page. One 4 pair shielded audio cable and one 6 pair unshielded cable are taped together and labeled CONN 1, the other two cables are taped together and labeled CONN 2. The CONN 1 group is associated with channels 1-4, while the CONN 2 group is used for channels 5-8.

The audio lines for the field wiring should be shielded twisted 22 gauge pairs. The shields should be connected to the terminal block shield terminals and the shield should be left open at the other end of the audio line.

DB-50 Pin Number	Signal Name	Wire Color 4 Pair Shielded	Wire Color* 6 Pair Unshielded	Terminal Block Pin Number
1	Audio 1 +	Black		1
18	Audio 1 -	Red		2
34	Audio 1 Shield (Gnd) / Input Common 1	BR Shield		3
2	Disable Input 1		White-Blue	4
19	Relay Common 1		Blue-White (Blue)	5
35	Relay Output 1		White-Orange	6
3	Audio 2 +	Black		7
20	Audio 2 -	White		8
36	Audio 2 Shield (Gnd) / Input Common 2	BW Shield		9
4	Disable Input 2		Orange-White (Orange)	10
21	Relay Common 2		White-Green	11
37	Relay Output 2		Green-White (Green)	12
5	Audio 3 +	Black		13
22	Audio 3 -	Green		14
38	Audio 3 Shield (Gnd) / Input Common 3	BG Shield		15
6	Disable Input 3		White-Brown	16
23	Relay Common 3		Brown-White (Brown)	17
39	Relay Output 3		White-Grey	18
7	Audio 4 +	Black		19
24	Audio 4 -	Blue		20
40	Audio 4 Shield (Gnd) / Input Common 4	BBl Shield		21
8	Disable Input 4		Grey-White (Grey)	22
25	Relay Common 4		Red-Blue (Red)	23
41	Relay Output 4		Blue-Red	24
9	Audio 5 +	Black		25
26	Audio 5 -	Red		26
42	Audio 5 Shield (Gnd) / Input Common 5	BR Shield		27
10	Disable Input 5		White-Blue	28
27	Relay Common 5		Blue-White (Blue)	29
43	Relay Output 5		White-Orange	30
11	Audio 6 +	Black		31
28	Audio 6 -	White		32
44	Audio 6 Shield (Gnd) / Input Common 6	BW Shield		33
12	Disable Input 6		Orange-White (Orange)	34
29	Relay Common 6		White-Green	35
45	Relay Output 6		Green-White (Green)	36
13	Audio 7 +	Black		37
30	Audio 7 -	Green		38
46	Audio 7 Shield (Gnd) / Input Common 7	BG Shield		39
14	Disable Input 7		White-Brown	40
31	Relay Common 7		Brown-White (Brown)	41
47	Relay Output 7		White-Grey	42
15	Audio 8 +	Black		43
32	Audio 8 -	Blue		44
48	Audio 8 Shield (Gnd) / Input Common 8	BBl Shield		45
16	Disable Input 8		Grey-White (Grey)	46
33	Relay Common 8		Red-Blue (Red)	47
49	Relay Output 8		Blue-Red	48
17	Gnd	NC	NC	49
50	Gnd	NC	NC	50

*Note: Two variations of the cable are manufactured. One variation is for the both wires of a pair to be striped i.e. the first pair consists of a white/blue striped wire and a blue/white striped wire. A second variation is for each cable pair to consist of a solid color wire and a striped wire i.e. the first pair has a solid blue wire and a blue/white striped wire (the solid color for the pair is shown in brackets).

4. System Planning Worksheet

The following page contains a blank system planning worksheet for the AOB-100/400 Audio Output Board. It contains a cross reference that includes the output board's mating connector, pin signal identification, field wiring cable conductor color, terminal block terminal point, and space to identify the field connection.

AOB-100/400 Audio Output Board

Card Cage: ___________________________________ Card Slot: _____________

DB-50 Pin Number	Signal Name	Wire Color*	Terminal Block Pin Number	Connect To
1	Audio 1 +	Black	1	
18	Audio 1 -	Red	2	
34	Audio 1 Shield (Gnd) / Input Common 1	BR Shield	3	
2	Enable Input 1	White-Blue	4	
19	Relay Common 1	Blue-White (Blue)	5	
35	Relay Output 1	White-Orange	6	
3	Audio 2 +	Black	7	
20	Audio 2 -	White	8	
36	Audio 2 Shield (Gnd) / Input Common 2	BW Shield	9	
4	Enable Input 2	Orange-White (Orange)	10	
21	Relay Common 2	White-Green	11	
37	Relay Output 2	Green-White (Green)	12	
5	Audio 3 +	Black	13	
22	Audio 3 -	Green	14	
38	Audio 3 Shield (Gnd) / Input Common 3	BG Shield	15	
6	Enable Input 3	White-Brown	16	
23	Relay Common 3	Brown-White (Brown)	17	
39	Relay Output 3	White-Grey	18	
7	Audio 4 +	Black	19	
24	Audio 4 -	Blue	20	
40	Audio 4 Shield (Gnd) / Input Common 4	BBl Shield	21	
8	Enable Input 4	Grey-White (Grey)	22	
25	Relay Common 4	Red-Blue (Red)	23	
41	Relay Output 4	Blue-Red	24	
9	Audio 5 +	Black	25	
26	Audio 5 -	Red	26	
42	Audio 5 Shield (Gnd) / Input Common 5	BR Shield	27	
10	Enable Input 5	White-Blue	28	
27	Relay Common 5	Blue-White (Blue)	29	
43	Relay Output 5	White-Orange	30	
11	Audio 6 +	Black	31	
28	Audio 6 -	White	32	
44	Audio 6 Shield (Gnd) / Input Common 6	BW Shield	33	
12	Enable Input 6	Orange-White (Orange)	34	
29	Relay Common 6	White-Green	35	
45	Relay Output 6	Green-White (Green)	36	
13	Audio 7 +	Black	37	
30	Audio 7 -	Green	38	
46	Audio 7 Shield (Gnd) / Input Common 7	BG Shield	39	
14	Enable Input 7	White-Brown	40	
31	Relay Common 7	Brown-White (Brown)	41	
47	Relay Output 7	White-Grey	42	
15	Audio 8 +	Black	43	
32	Audio 8 -	Blue	44	
48	Audio 8 Shield (Gnd) / Input Common 8	BBl Shield	45	
16	Enable Input 8	Grey-White (Grey)	46	
33	Relay Common 8	Red-Blue (Red)	47	
49	Relay Output 8	Blue-Red	48	
17	Gnd	NC	49	
50	Gnd	NC	50	

*Note: Two variations of the cable are manufactured. One variation is for the both wires of a pair to be striped i.e. the first pair consists of a white/blue striped wire and a blue/white striped wire. A second variation is for each cable pair to consist of a solid color wire and a striped wire i.e. the first pair has a solid blue wire and a blue/white striped wire (the solid color for the pair is shown in brackets).