TUNER CONTROL

USB

DAB1 DISTRIBUTED AUDIO SYSTEM

ACTIVE   AC ON

ZONE CONTROL

IMPORTANT SAFETY INSTRUCTIONS

CAUTION: Read all of these instructions before you operate and save instructions for later use.

1. Read Instructions - all the safety and operating instructions should be read before the appliance is operated.

2. Retain Instructions - The safety and operating instructions should be retained for future reference.

3. Heed Warnings - All warnings on the appliance and in the operating instructions should be adhered to.

4. Follow Instructions - All operating and use instructions should be followed.

5. Water and Moisture- The appliance should not be used near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, and the like.

6. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

7. Caution: To prevent electric shock, do not use this (polarized) plug with an extension cord, receptacle, or other outlets unless the blades can be fully inserted to prevent blade exposure.

8. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. When placed in a built-in installation, such as a bookcase or cabinet, leave at least 20 cm/8 inch of space between the top, back and sides of the appliance and the wall or other components. The appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings. Do not obstruct any ventilation holes.

9. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

10. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

11. Grounding or Polarization - Precautions should be taken so that the grounding or polarization means of an appliance is not defeated.

12. Power-Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

13. Cleaning - The appliance should be cleaned only as recommended by the manufacturer. Clean only with a dry cloth.

14. Non-use Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

15. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:

   A. The power-supply cord or the plug has been damaged; or

   B. Objects have fallen or liquid has been spilled into the appliance; or

   C. The appliance has been exposed to rain; or

   D. The appliance does not appear to operate normally or exhibits a marked change in performance; or

   E. The appliance has been dropped or the enclosure damaged.

17. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

18. Storms - To prevent damage to components, unplug all electronic equipment during thunderstorms.
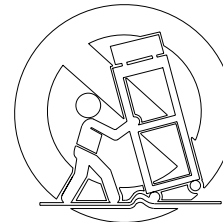
**WARNING
MOVE WITH CARE**

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO AUTHORIZED
SERVICE PERSONNEL.

The lighting flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD,
DO NOT EXPOSE THIS APPLIANCE TO
RAIN OR MOISTURE.

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TABLE OF CONTENTS

DAB1 - DISTRIBUTED AUDIO SYSTEM

INTRODUCTION

Thank you for purchasing the Sonance DAB1 Distributed Audio System. The DAB1 is a four-source, six-zone, whole-house audio distribution and control system that is easy to install and operate. The DAB1 features macro programming for ease of use, "Party" Mode for whole-house control and Paging for communication between rooms.

Simple, one-button system macros can turn the system ON, select a Source and start the music. For more sophisticated systems, the DAB1 features an RS-232 communication port for integration with lighting, automation and security systems.

The DAB1 Package includes:

• One DAB1 Controller

• One DAB1 Installation Instructions Manual

• One DAB1 Handheld Remote Control (batteries included)

• Two Rack Mount Ears

• One AM Antenna

• One FM Antenna

• One Power Cord - RS-232 cable USB cable

• Six speaker plugs (inserted in the rear-panel Speaker Out connectors)

If any of the items above were not in the master pack when originally opened, please call Sonance at 1-800-582-7777 and ask for Customer Service.

For the latest downloadable DAB1 Program Manager Software and Firmware, go to the www.sonance.com website.

DAB1 Optional Accessories (sold separately):

DAB Keypads (white)

• Three levels of keypad control: Press, Press and Hold, and Double Press

• Adjustable backlighting and configurable source buttons

Optional colors for DAB Keypad Bezels (ivory, almond, and black)

VE1 IR Emitters (up to four)

Using the DAB1 with Other Keypads:

The DAB1 was designed to work with any Sonance keypad, including the Navigator K2 LCD In-Wall Controller and the Navigator K1 In-Wall Keypad to provide the installer with the flexibility of designing a system to meet their customer's needs.

This Manual is broken down into two main sections. The first covers the features, functions and installation of the DAB1 Controller and Keypads. The second covers the DAB1 Program Manager Software and System Configuration.

Thank you again for purchasing the Sonance DAB1 Distributed Audio System.

SYSTEM OVERVIEW

The DAB1 Distributed Audio System features:

• Four Source, Six Zone, distributed audio matrix and Control System

• DAB1 Controller System Status Window

• Connections for up to six Sonance keypads

• Includes one DAB1 Remote Control (batteries included)

• Extensive macro capability from Keypads or Remote including DAB1 system commands, IR commands, RS-232 commands and special system functions.

• Built in AM/FM Tuner

• Twelve programmable Tuner Presets

• Four Source Inputs (including the Internal Tuner, which can be switched off) to use with external sources.

• Four buffered line level audio outputs that can be used to bridge to additional DAB1 Controllers or as record monitor inputs

• Six Zone speaker level outputs

• Six Zone line level audio outputs (fixed or variable)

• Six Zone specific IR outputs

• Four common IR outputs

• Four programmable IR outputs for IR routing from Keypads

• One RS-232 port for external control

• One RS-422 port for external control - not active

• Paging Input connections

• IR Link for distributing IR signals in expanded systems using multiple DAB1 Controllers

• Sync connections to turn multiple DAB1 Controllers ON/OFF in expanded systems

• DAB Program Manager system programming software downloadable from www.sonance.com .

• Software configuration of individual Zone "Turn On" Volume, Maximum Volume, Paging Volume, Treble, Bass and Balance

• Line-level source inputs are adjustable for source to source input level matching

• Program Manager Notification System advises when changes made in software have not been transferred to the DAB1 Controller.

• Upgradeable Firmware for adding new features when they become available

• Easy to install

• Easier to use

SYSTEM FEATURES

Figure 1. DAB1 Controller Front Panel
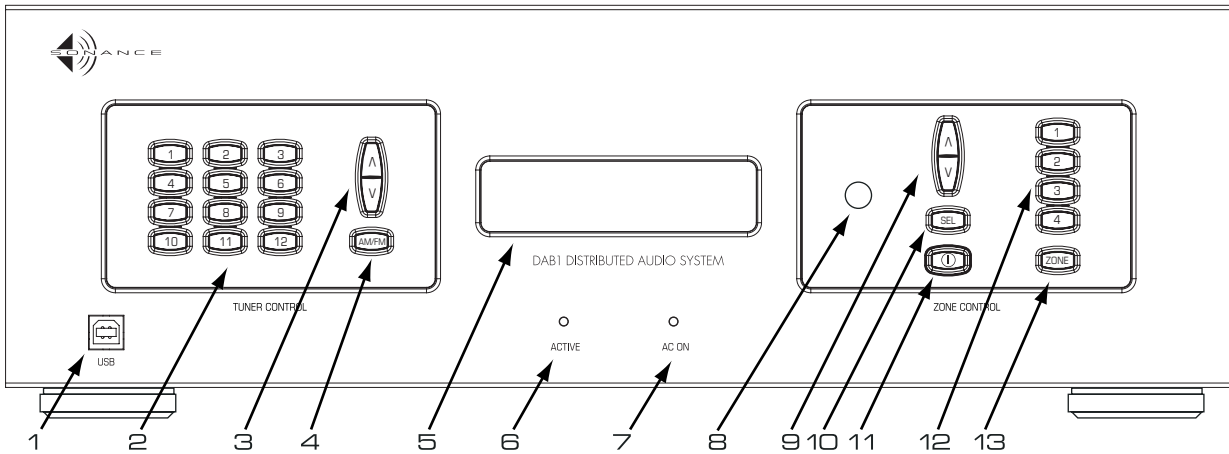
Figure 2. System Status/Tuner Window

```
Z1 Tuner        Vol
S1 95.6 MHz FM 12
```

DAB1 CONTROLLER FEATURES (Items in parenthesis indicate Press and Hold functions)

DAB1 Controller Front Panel

1. **USB Programming Port** – Front Panel terminal used for system programming from a PC with the DAB1 Program Manager Software.

2. **Tuner Preset Buttons** – Direct selection of up to 12 AM or FM Stations as configured in DAB1 Program Manager. (Press and Hold to store presets)

3. **Tuner Up/Down** – Scans the AM and FM Bands UP/DOWN for tuning radio stations.

4. **AM/FM Band Select** – Selects Tuner AM or FM Band.

5. **System Status/Tuner Window** – Displays status of:

   a) Zone ON/OFF
   b) Zone Volume, Mute, Treble, Bass, Balance, Paging Volume
   c) Zone Source Selection
   d) Tuner Selection
   e) System ON/OFF Status
   f) Zone Being Controlled

6. **System Active LED** – Turns green when any zone is ON. Turns Off when all zones are OFF.

7. **AC Power LED** – Turns red when DAB1 Controller has AC power.

8. **IR Receiver** – Programmable front panel IR receiver controls Source Select/Zone ON, Volume, Mute, all Tuner functions, four pre-programmed IR commands for each Source, Zone OFF and System OFF in one specific Zone or "none" as configured in DAB Program Manager. It also serves as a pass through to the rear panel Common IR outputs.

9. **Zone Function Value** – Multi-function control that operates in tandem with the Zone Function Select Button (#10). Modifies the following parameters in the Zone being controlled: Volume Offset, Treble, Bass, Balance and Paging Volume. Mutes/ Un Mutes the Zone when the center of the double button is pressed.

10. **Zone Function Select** – Selects between Volume, Treble, Bass, Balance and Paging Volume for the Zone being controlled. When the button is pressed and held for 10 seconds the display shows the Firmware version installed. Press the Zone Power Button (#11) to return to the menu.

• To lock-in changes made to a Zone's the Volume Offset, Treble, Bass, Balance and Paging Voulme:

   a) Hold-down the Zone Function Select button for 15 seconds

   b) The Firmware version number will appear.

   c) When the Firmware version number disappears, press the Zone Function Select button again.

   d) Press the AM/FM button (#4) to lock-in the settings.

   e) Press the Zone Power button (#11) to exit.

11. **Zone Power ON-OFF / System OFF**

   a) When pressed and released, turns the Zone being controlled ON/OFF.

   b) Turns ON last Zone selected when pressed and released with System OFF.

   c) Turns all Zones OFF when pressed and held for about 3 seconds.

12. **Source Select** – Selects Source for the Zone selected in the Status Window.

13. **Zone Select** – Selects the Zone to be controlled by Front Panel Buttons and displayed in the Status Window. Selected Zone is shown in the upper left corner of the Status Window as Z1-6 (Zones 1-6) or ZA for ALL Zones. (When adjusting
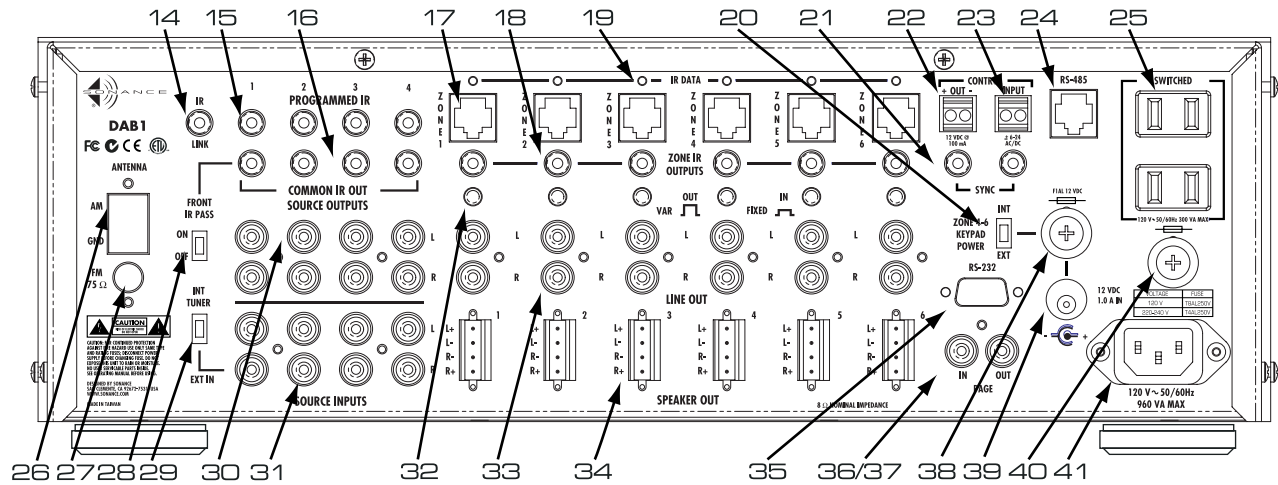
Figure 3. DAB1 Controller Rear Panel

Volume with ALL Zones selected, the Zones' Volumes change relative to their individual settings. i.e. If Zone 1 is set to "12" and Zone 2 is set to "14", if Volume UP is pressed 2 times in the ALL Zones mode, Zone 1 will change to "14" and Zone 2 will change to "16".) (Volume levels will not be displayed in "All Zones" mode.)

NOTE: The FRONT PANEL BUTTONS can be LOCKED OUT by pressing and holding the MUTE button for 10 seconds. This can help prevent unauthorized persons from getting into the setup menu and changing system parameters. Press and Hold for 10 seconds again to unlock.

DAB1 Controller Rear Panel

14. **IR Link** – 3.5mm mini jack used to create IR buss for COMMON IR OUT when using multiple DAB1 Controllers. This link does not pass Programmed IR. (See Figure 10 Expanded System.)

15. **Programmed IR Ports** – Four 3.5mm mini jacks used to send IR commands to specific components (sources) as configured in DAB1 Program Manager. Allows IR routing for selective control of multiple same-brand, same-model components such as multiple CD Players or Satellite Receivers.

16. **Common IR Ports** – Four 3.5mm mini jacks output all IR commands regardless of Zone for all components.

17. **Keypad Ports** – Six RJ45 jacks used to connect Keypads and IR receivers to the DAB1 Controller.

18. **Local IR Output Jacks** – Six 3.5mm mini jacks that can be used for IR control of zone-specific source equipment. i.e. a Cable Box or Satellite Receiver for the bedroom.

19. **IR Data LED** – Six LEDs flash amber to indicate IR activity in a Zone.

20. **Zone 4-6 Keypad Power Switch** – Slide Switch decouples internal power supply from Keypad Ports 4-6 to allow use of an external power supply (12VDC 1A) when using Keypads that require more power (Sonance K1 and K2 Series) than standard DAB1 Keypads.

21. **Sync** – Two 3.5mm mini jacks used to trigger link up to four DAB1s for Party Mode control. (See Figure 10 Expanded System.)

22. **Control Out** – One 2- wire screw connector outputs 12VDC @ 100mA when at least one Zone is active on a DAB1 Controller. OFF (0VDC) when all Zones are OFF. Can be used for triggering external devices such as a zone specific external amplifier. Accepts one pair 12-24 AWG wire.

23. **Control Input** – General trigger input that can be used for paging or sense input as part of a DAB1 Status test in a macro. Requires 5-24V AC or DC @ 100mA. Accepts one pair 12-24AWG wire.

24. **RS-422 Terminal** – One RJ45 jack used to send and receive RS-422 control data. This port may not be currently active. Check www.sonance.com for updates regarding this feature.

Note: This is not an Ethernet port. Do not plug an Ethernet connection into this jack.

25. **Switched AC Outlets** – Two 2-prong AC outlets used to automatically power up source components. ON when any Zone is ON; OFF when all Zones OFF. Max load, 300W.

26. **AM Antenna Terminal** – One 2-wire spring clip allows connection of included AM Loop Antenna.

27. **FM Antenna Terminal** – One F-type connector allows connection of included indoor FM dipole Antenna

28. **Front IR Pass Switch** – Slide switch allows IR Receiver on Front Panel of DAB1 Controller to control Source Select/Zone ON, Volume, Mute, all Internal Tuner functions, four pre-programmed IR source commands, Zone OFF and System OFF in one specific Zone (or "none") as configured with DAB1 Program Manager.

29. **INT Tuner/EXT IN Switch** – Slide switch assigns either the Internal AM/FM Tuner or an external source component (CD Player, Music Server etc) as Source One.

30. **Buffered Source Output Jacks** – Four pair of gold plated RCA type jacks primarily used to send line level audio to additional DAB1 Controllers (up to four total) in expanded systems. These buffered outputs can also be used as audio

feeds for recording. (See Figure 10 Expanded System.)

31. **Source Input Jacks** – Four pair of gold-plated RCA type jacks for line level audio input from Source Components.

32. **Variable/Fixed Output Select Switch** – Six push-button switches change Zone Line Level Outputs from Variable (OUT position) to Fixed (IN position). The Variable position is recommended when using a high-power external amplifier, such as the Sonamp 2120T, in a large room or outdoor Zone when volume will still be controlled with either the DAB1 Keypad or an IR remote. (See Figure 11, High Power Zone.)

The Fixed position is recommended for Sub-Zone Expansion where a single Zone Out from the DAB1 Controller will be feeding a multi-channel amplifier, (Sonamp 1230), to send audio from a selected source to multiple rooms, where volume will be adjusted locally with in-wall volume controls (Sonance Model# VC30R). (See Figure 12, Sub-Zone Expansion.)

33. **Line Out Jacks** – Six gold-plated RCA type jacks that send line-level audio to external components as described in item 32 above.

34. **Speaker Out Terminals** – Six plug-in 4 terminal screw-type connectors allow quick connection of speaker wires. Can accommodate up to 12 gauge stranded wire.

35. **RS-232 Terminal** - One DB9 connector used to send and receive control data. Best for use with source components or whole-house devices in close proximity to the DAB1 Controller. **Configured as Null Terminal.**

36. **Page IN** – One gold-plated mono RCA type jack. Designed for use with line-level audio input from a telephone system, microphone preamp or other device to be distributed to Paging Zones when triggered with the Control Input. (Configured with DAB1 Program Manager)

37. **Page OUT** – One gold-plated mono RCA type jack. Loop thru used to send Paging audio signal to additional DAB1 Controllers in expanded systems. (See Figure 10 Expanded System.)

38. **Internal/External 12V Keypad Power Switch Fuse** – Fuse. 1 Amp, slow blow, 5x20 UL type **ONLY**. Provides protection from faulty external keypad wiring.

39. **Internal/External 12V Keypad Power Jack** – One 2.1mm coaxial jack. Pin: +12V, Sleeve: ground. Used to connect an external power supply to provide additional power to Zones 4-6 when using Keypads that require more power than standard DAB1 Keypads such as the Sonance Navigator K2. See #20, Zone 4-6 Keypad Power Switch.

40. **Main AC Fuse** – Fuse. 120VAC 8A / 230VAC 4A, slowblow 5x20mm.

41. **AC Input Jack** – Standard IEC 3-conductor AC line cord receptacle. (Use only IEC 18/3 or larger if replacing and match the correct gauge with length of replacement cord).
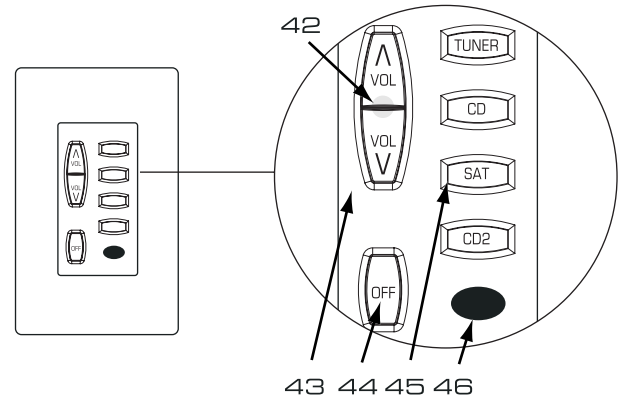
Figure 4. DAB1 Keypad Front Panel

OPTIONAL DAB1 KEYPAD FEATURES

DAB1 Keypad Front Panel

42. **Mute** – Center of Volume UP/DOWN button. Press mutes the local Zone's audio. Press again to un-mute. Press and Hold will MUTE/UN-MUTE all Zones in "Party" Mode as configured in DAB1 Program Manager.

43. **Volume UP/DOWN** – Adjusts audio level in the local Zone or all Zones, (as set in the DAB1 Program Manager).

44. **OFF** – Press Turns Zone OFF. Press and Hold turns OFF all Zones in "Party" Mode. The last Zone OFF will turn the system OFF and remove power from Source components if they are plugged into the switched outlets.

45. **Source Select Buttons (Zone ON)** – Configurable buttons allow labeling by source name. Press selects that Source. Press and Hold selects that Source to all Zones included in "Party" Mode. Pressing a Source button in a Zone that is OFF will turn that Zone ON.

46. **IR Receiver** – IR receiver allows control of the local Zone (ON/OFF, Source select, Volume, Mute, Tuner UP/DOWN, Tuner preset select), sources (play, stop, skip, pause etc) and system (all OFF) from a DAB1 Remote or properly programmed hand-held IR remote. Passes IR commands through to Common IR Outputs only.
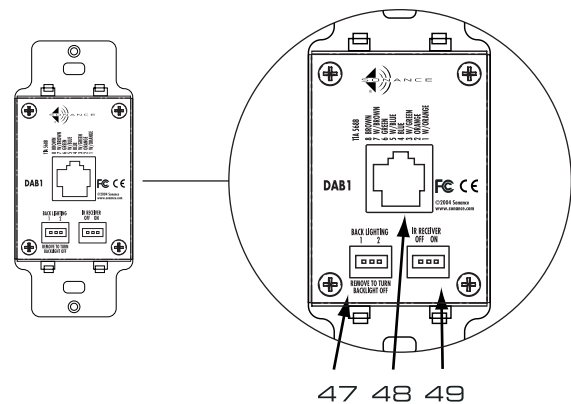
Figure 5. DAB1 Keypad Rear Panel

DAB1 Keypad Rear Panel

47. **Keypad Backlighting Jumper** – Two-position jumper adjusts Keypad backlighting. Position 1=dim, position 2=bright. To defeat backlighting, remove the jumper. OFF button green and red LEDs will remain active with back-lighting jumper removed. Keypad will function with back-lighting jumper removed.

48. **Keypad Connection** – RJ45 jack connects Keypad to DAB1 Controller via CAT5 wire.

49. **IR Receiver Jumper** – Two-position jumper enables/disables IR Receiver on Keypad. It is recommended that the IR Receiver be disabled in rooms with bright lights or sunlight as this may interfere with the system's performance.
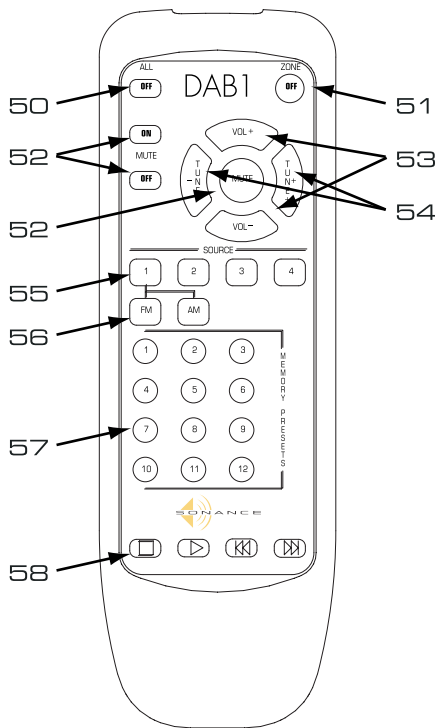
Figure 6. DAB1 Remote Control

DAB1 REMOTE CONTROL FEATURES

50. **All OFF** – Turns all Zones OFF. Will also remove power from any components that are plugged into the switched outlets on the back of the DAB1 Controller.

51. **Zone OFF** – Press turns the local Zone OFF. Other active Zones will continue ON until turned OFF. Press and Hold turns OFF all Zones in "Party" Mode. The last Zone OFF will turn the system OFF and remove power from Source components if they are plugged into the switched outlets.

52. **Mute ON/OFF** – Mute ON mutes Zone audio (speaker and line level). Mute OFF un-mutes Zone audio (speaker and line level).

53. **Volume +/-** – Adjusts audio level in a specific Zone.

54. **Tuner +/-** – Scans the AM and FM Bands UP/DOWN on Internal Tuner for tuning radio stations.

55. **Source 1-4 (Zone ON)** – Press selects the Source to be played in that Zone. Press and Hold selects that Source to all Zones in "Party" Mode. Selecting a Source in a Zone that is OFF will turn that Zone ON (individual Zone or "Party" Mode).

56. **FM/AM** - Selects AM or FM Band on the DAB1 Tuner

57. **Memory Presets 1-12** - Direct selection of up to 12 radio stations, AM or FM, as configured in the DAB1 Program Manager or from front panel controls.

58. ⬜ ▷ ◁◁ ▷▷ – These four buttons can be programmed in the DAB1 Program Manager for Stop, Play, Skip Reverse or Skip Forward for each Source. They can be programmed for any other function as desired by the user. Macros of IR, DAB and RS-232 commands can be associated to these buttons in Program Manager.

NOTE: Additional DAB1 Handheld Remotes can be purchased separately. Sonance Part number: 92103 DAB1RC.

QUICK START

The DAB1 has certain features and functions pre-programmed at the factory. This default programming includes:

- System Power ON/OFF from DAB1 Keypads or DAB1 Remote Control

- Zone Power ON/OFF from DAB1 Keypads or DAB1 Remote Control

- Party Mode Power ON/OFF from DAB1 Keypads or DAB1 Remote Control

- Source Selection from DAB1 Keypads or DAB1 Remote Control

- Party Mode Source Selection from DAB1 Keypads or DAB1 Remote Control

- Volume UP/DOWN from DAB1 Keypads or DAB1 Remote Control

- Mute ON/OFF from DAB1 Keypads or DAB1 Remote Control

- Party Mode Mute ON/OFF from DAB1 Keypads or DAB1 Remote Control

- Source Power ON/OFF for two sources

With the system set up and connected as shown in Figure 7, the DAB1 and its sources can be tested for proper operation. (It is recommended to always test components prior to installation.) A certain amount of configuration and programming will be required for every system, but setting the system up and testing functionality will also provide familiarity with the DAB1 and the source components prior to programming, and will save time in system design, programming and installation.

Quick Start Setup and Operation of a Basic Six-Zone system

Note: For use with a universal remote or source component supplied remote.

1. Connect all components as shown in Figure 7 including:

   a) DAB1 Controller

   b) DAB1 Keypads (See Section: Wiring Keypads)

c) Source Components

d) Speakers

e) IR Emitters

f) AM and FM Antennas (if using the internal tuner.)

2. Manually turn ON the source components.

3. Load discs or tapes to source components as needed and press PLAY on each.

4. Press the TUNER button on the keypad for Zone 1. The DAB1 Controller will turn ON, Zone 1 will activate and switch to the Internal Tuner Input.

5. Use the Tuner UP/DOWN buttons on the DAB1 Front Panel to tune an AM or FM station.

6. Press the Volume UP/DOWN buttons. The volume will increase and decrease.

7. Press the middle of the Volume UP/DOWN button and the speakers should mute. Press again or press Volume UP/DOWN to un-mute .

8. Press the Source buttons for Sources 2, 3 and 4. The program material will change with each Source.

9. Press OFF button on Keypad, Zone 1 will turn OFF.

10. Repeat Steps 4-8 to test all Zones to be used in the system.

11. Press and Hold the Tuner button. All Zones will turn ON to Tuner.

12. Press and Hold Source buttons 2, 3 and 4. All Zones will change program material.

13. Press and Hold Mute. All Zones should MUTE. Press and Hold again to UN-MUTE.

14. Press and Hold the OFF button. All Zones will turn OFF.

If there are any functional problems with the system, check all connections. If problem persists, see section: TROUBLESHOOTING or call Sonance Technical Support at: 1-800-582-7777.
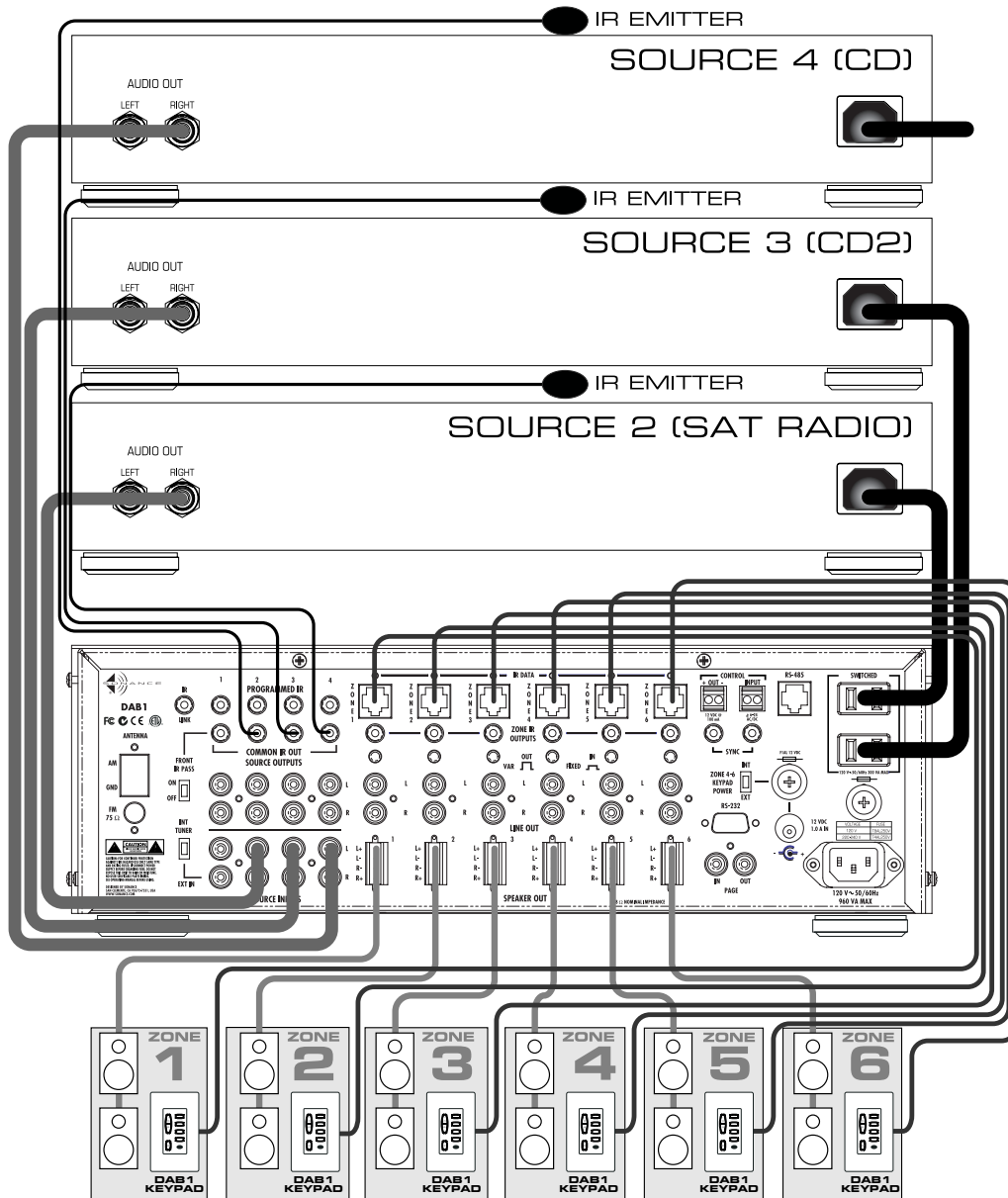
Figure 7. Typical DAB1 System

SYSTEM DESIGN

What is the system going to be when it grows up? (Plan Ahead)

The DAB1 Distributed Audio System has features and capabilities that will meet the demands of almost any application. It can be a simple background music system or it can be integrated as a sub-system in a complex whole-house automation and control package. Understanding the DAB1's features and capabilities and adapting them to clients' needs, creates great systems and happy clients.

When proposing the system to a prospective client, make suggestions to what the system can do. As part of the process, "interview" the client to get a feel for how the system will be used and base system design and configuration on what the client wants, in a way that is easy to understand and operate. Understand the client's needs and desires. Configure and program to those needs and to future possibilities.

In all stages of system design and installation, plan ahead. Know what sources are going to be used. Have them in hand when needed to test system programming and function. With a system that can literally leave holes in the walls if something hasn't been properly planned or tested, always setup, program and test the system as it will be used *before* going to the job site to do the installation. This is even more critical when traveling long distances, perhaps out of state, or even out of the country.

When designing a whole-house system using the DAB1, or any system for that matter, always plan for system expansion in terms of both size and flexibility. The initial requirement may be for a simple background music system incorporating four sources in six Zones. However, once the user has 'lived' with the system for a while, they may want to add more Zones, incorporate the Telephone Paging System that was originally proposed but didn't make sense at the time, or add one of those neat new Sonance Touch Panel Controls for whole-house control of music, video, lighting and HVAC.

Anticipating system expansion can save the installer and homeowner time, money and aggravation, by carefully planning what the initial installation is going to be and what the system requirements might be as upgrades are incorporated.

Head End Considerations

Both in new construction or in a re-model, always try to work with the homeowner and whomever possible on the build/design team to reserve as much space as possible for the DAB1 and source components. An equipment closet with rear access to the components is ideal, but not always possible. At least reserve enough space in a rack or wall unit to properly install all components, leaving plenty of room for wire, ventilation, possible future expansion and room to work.

Zone Considerations

What is the performance requirement for each Zone? Some Zones may only require a Keypad and speakers. Some may need an additional IR receiver. One may need a more flexible Keypad and a high-power amplifier. A master-suite may require a multi-channel amplifier to distribute audio to the bedroom, bathroom and patio. One or more may have local devices that need to be incorporated into the system for con-

trol, audio or video. Offer the right selection of Keypad models and IR receivers, based on usage.

Careful planning can save time, money and possibly reputation. Think the system through, hook the system up before actually performing the installation to be sure everything works as designed, and that all the necessary parts and pieces are in hand prior to installation.

INSTALLATION

DAB1 Controller Location and Mounting

The DAB1 Controller should be installed at the main termination of all wire and cable runs. The system source components (CD, Music Server, DVD, Satellite Receiver, etc) should also be installed at this location.

The installation may be on shelves in a wall-unit, in a media room or rack-mounted in a 19" standard equipment rack in a dedicated equipment room. After determining the location, consideration should be given to having access to the system for loading CDs and DVDs. Additionally, easy access for service should be a consideration.

Ventilation and Airflow

The DAB1 Controller must be placed in a location that will allow sufficient airflow for ventilation. Leave space above the Controller, per the safety instructions, to allow the unit to "breathe" through the vent holes in the top and bottom of the unit. Blocking the vent holes will inhibit airflow through the unit and can cause damage to the DAB1. Install a Whisper fan if necessary.

Always leave plenty of room for wire and cable. The amount of wire used in this type of installation can fill the empty space around the Controller and act as an insulator. This can create an undesirable thermal condition that could cause the unit to shut down. Leaving extra room for wire and cable is also suggested for convenience should the system require service or be upgraded.

Shelf Mount

Never remove the feet when mounting the unit on a shelf. Doing so will may cause damage to the DAB1 and other components due to heat being trapped.

Rack Mount

When rack mounting the DAB1 Controller, leave sufficient space between the unit and other components in the rack to allow proper airflow for ventilation. Using a rack vent spacer to improve airflow is recommended.

When rack-mounting the DAB1 Controller, use the included rack-mount adaptors and hardware as shown in Figure 8. Use the four chassis screws already attached to the DAB1 to attach the rack adaptors. The DAB1 chassis has been specially designed to provide support when using these adaptors. The adaptors have also been designed to match the Front Panel of the DAB1 for a clean, professional look.
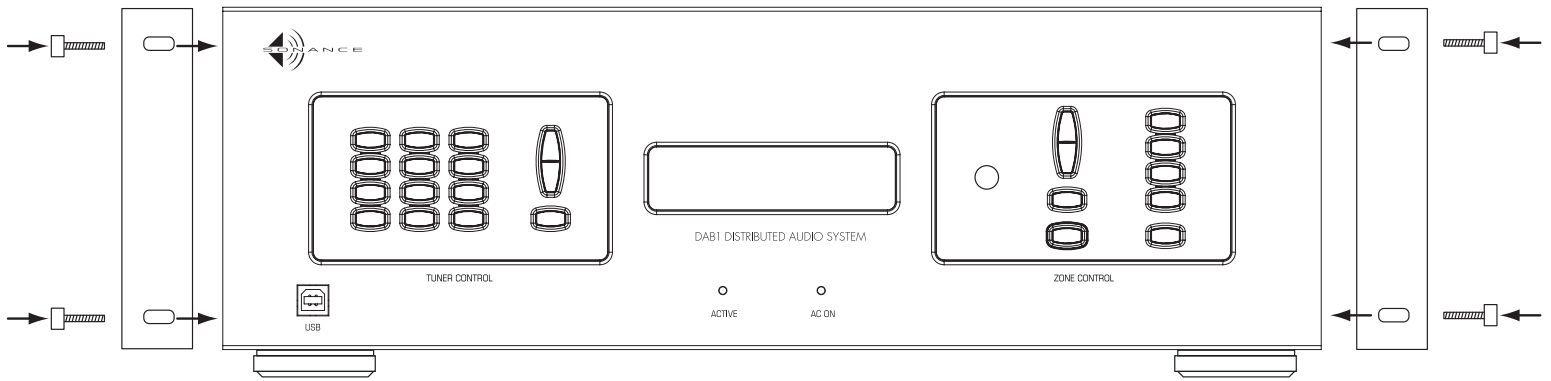
Figure 8. Installing Rack Mount Adaptors

Keypad Location and Mounting

DO NOT mount the DAB1 Keypad in the same electrical box with AC house wiring, light switches, or any other high voltage device or control. The Keypad can share gang boxes with other controls such as A/B speaker switches, infrared receivers and Volume Controls, if these other devices are rated as Class 2 devices according to the National Electrical Code.

Avoid mounting Keypads in locations that will be exposed to moisture such as near sinks, showers, bathtubs. If using keypads outdoors, only use in a covered area with an appropriate weather-proof box.

The DAB1 Keypad should typically be located near the entrance to a room, similar in height and location to a light switch (see warning above). Bright or direct sunlight can interfere with the IR Receiver in the Keypad, so care should be taken to avoid placing the Keypad near windows or areas that get direct sunlight. If this is not possible, you may need to disable the IR receiver as explained in #49 on page 9.

Keypad with an External IR Receiver

An alternative to avoid interference from sunlight is to use an external IR Receiver in another location in the room away from the problem area. In this case, the IR receiver on the keypad can be disabled as explained in #49 on page 9.

For the convenience of the user, adding an IR Receiver in the "action" area of the room should be considered. If the Keypad is by the door, and the door is behind the couch or chair the user will be sitting on, an IR Receiver located on the "front" wall of the room at a TV or near a speaker allows the user to aim the remote forward to control the system.

WIRING

The system wiring infrastructure brings together all considerations of planning, installation and future expansion. The DAB1 is a versatile system component. A full, proper wiring job will enable it to live up to its full potential, even if not all used at the time of initial installation.

Keypad

CAT5 – Pull, in home-runs (direct run from keypad to controller) from every room and location that could ever be a system control point. Max length: 1000'. See Figure 9 for RJ45 connector pinout.

4-Conductor Stranded – Option when CAT5 is not available. Home-run configuration, 20AWG up to 500'. 18AWG to 1000'. Non-shielded preferred. *NOTE: When using two DAB1 Keypads in a Zone, use an RJ45 Y adaptor to connect the two keypads. When adding an IR receiver or other IR device (K1 or K2 Keypad) use Sonance part number 92102, RJ45 to one 4-conductor wire terminal.*

PIN	Signal	Color
1	No Connection	White/Orange
2	No Connection	Orange
3	No Connection	White/Green
4	IR Signal	Blue
5	Status	White/Blue
6	No Connection	Green
7	Ground	White/Brown
8	+12VDC	Brown

RJ45 PINOUT

PIN	Color
1	White/Orange
2	Orange
3	White/Green
4	Blue
5	White/Blue
6	Green
7	White/Brown
8	Brown

Flat Side UP
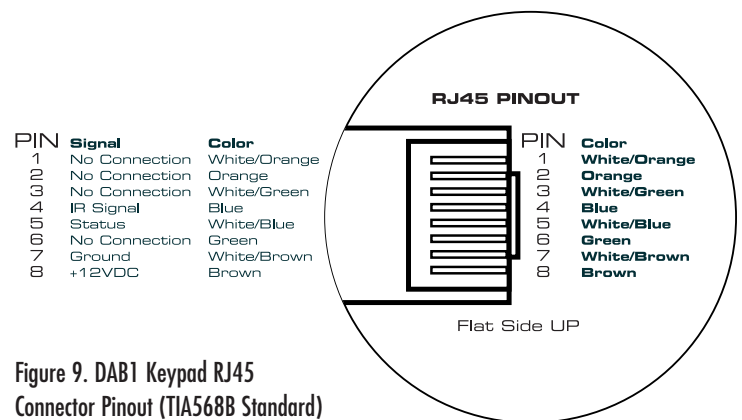
Figure 9. DAB1 Keypad RJ45 Connector Pinout (TIA568B Standard)

Speaker Wire

2 Pair Stranded – There are two wiring schemes that should be considered for speaker wire. In most applications, wire should be pulled in home runs directly from the speaker locations to the DAB1. This method assumes Volume in each Zone will be controlled by the DAB1 Keypad or an IR remote. (See Figure 7). The second scheme would be to run the speaker wire through a low voltage J-box when in-wall Volume Controls are to be used. This method is appropriate when an external multi-channel amplifier will be used to increase the number of rooms on a Zone, and Volume will be controlled in each room with an in-wall Volume Control. (See Figure 12). 18 AWG up to 50'; 16 AWG up to 100'; 14 AWG up to 250'.

Local IR

2 Conductor Stranded – There are two probable ways that this would need to be done. 1) If the 'Local' devices are located at the head end (zone dedicated satellite receivers, cable boxes, etc) no additional wiring should be required. Emitter wires are ten feet long and should be long enough to reach the source components. 2) If the 'Local' devices are located in the remote Zone, pull home runs of two conductor non-shielded to each local device location. 20AWG up to 1000'.

Local Source

In some applications, the source will be installed in the local zone rather than at the head end. This would allow the user to load CDs or DVDs without having to go to the head end. Special consideration needs to be given to the wiring depending on how long the wire run is going to be. Use appropriate patch cables such as Sonance MediaLinQ® Stereo RCA Cords up to about 15'. Beyond that, if the total length of audio cable is less than fifty feet, use two Sonance MediaLinQ 16/2 Gold cables terminated with Sonance Fieldress® Solderable RCA connectors. Additionally, use Fieldress RCA to RCA buckhead connectors and Fieldress Decora Style inserts for a professional finish. For runs longer than 50', use Sonance LR1 and LS1 balanced line system for runs up to 500 feet.

Antenna

AM – Use the included AM Loop Antenna. For the best reception in some areas, use an outdoor or amplified indoor antenna.

FM – Use the included FM Dipole Antenna. For the best reception in some areas, use an outdoor or amplified indoor antenna.

Paging

Trigger Wire - Two-conductor non-shielded wire run from Paging trigger voltage source to DAB1 Control Input. 20AWG up to 500'; 18AWG to 1000'.

Page IN – Quality audio cable, such as Sonance MediaLinQ® Stereo RCA Cords up to about 15'. Beyond that, if the total length of audio cable is less than fifty feet, use Sonance MediaLinQ 16/2 Gold cable terminated with a Sonance Fieldress® Solderable RCA connector. Additionally, use a Fieldress RCA to RCA buckhead connector and Fieldress Decora Style insert for a professional finish. For runs longer than 50', use Sonance LR1 and LS1 balanced line system for runs up to 500 feet from paging source to DAB1.

Page OUT – Typically to be used to send paging audio signal to additional DAB1 Controllers in expanded systems. Standard mono audio RCA cable. No additional wiring required.

RS-232 (DB9 NULL Modem Cable/Connector)

RS-232, though capable of communicating sophisticated control strings, has limitations in its transmission range. Typically RS-232 links should be limited to about fifty feet total length. The cable for this is a nine-conductor cable and a finished cable of appropriate length is recommended for use in this application.

Note: RS-232 Port is NULL. RS-232 DB9 pinout: Pin 2: Rx (receive), Pin 3: Tx (transmit), Pin 5: GND (ground).

RS-422 (RJ45 Connector)

CAT5 cable up to 4000' total length from control device/device to be controlled to DAB1. This port may not be currently active. Check www.sonance.com periodically for updates regarding this feature.

Note: This is an RS-422 port that is capable of 2-way communication.

CONNECTING THE DAB1 CONTROLLER

When making any connections to the DAB1 Controller, be sure to turn the main power OFF and unplug the AC power cord to prevent damage or electrical shock.

Source Component Connections

Source Inputs

When Using the DAB1 Tuner – Set the INT TUNER/EXT IN switch to INT TUNER (default position). Connect one stereo RCA to RCA cable from the LEFT & RIGHT audio outputs on each source component to the LEFT & RIGHT Source Inputs on the DAB1 Controller for sources 2-4.

When Using Four External Sources – Switch the INT TUNER/EXT IN switch to EXT IN. Connect one stereo RCA to RCA cable from the LEFT & RIGHT audio outputs on each source component to the LEFT & RIGHT Source Inputs on the DAB1 Controller for sources 1-4.

Source Output Connections

When Using Multiple DAB1 Controllers – Connect one stereo RCA to RCA cable from the L&R Source Output on the PRIMARY DAB1 to the corresponding L&R Source Input on the SECONDARY DAB1 (Source 1 Out to Source 1 IN, etc.) Repeat for up to four DAB1 Controllers (24 Zones). This will feed audio from the common sources to all Zones in an expanded system.

For Recording – Connect one stereo RCA to RCA cable from the L&R SOURCE OUT on the DAB1 to the L&R RECORD IN on the recording device to connect the source to be recorded to the recording device. For selective Source recording, connect a specific ZONE LINE OUT, switched to the FIXED position, to the RECORD IN on the recording device. This will allow audio recording of the source selected in that Zone.

IR Control Connections

Using Common IR Out – Connect one Sonance OptiLinQ™ type emitter to each COMMON IR OUT for each common external source component, when all Zones have control of all Sources and there is no duplication of source components (multiple same-brand, same-model CD, DVD players etc). Attach Emitter to the IR window on each source.

Using Programmed IR Out - Connect one Sonance OptiLinQ type emitter to each PROGRAMMED IR OUT for each common external source component, when all Zones have control of all Sources and selective control of multiple same-brand, same-model components (CD, DVD players etc), is required. Attach Emitter to the IR window on each source. *NOTE: Use of this feature requires configuration with the DAB1 Program Manager.*

Using Local IR Out – Connect one Sonance OptiLinQ type

DAB1 12 Volt Sync Link

DAB1 IR Link

Primary DAB1 L&R Source Outputs to Secondary DAB1 L&R Inputs

Page Trigger Device

Primary DAB1 Page Out to Secondary DAB1 Page In
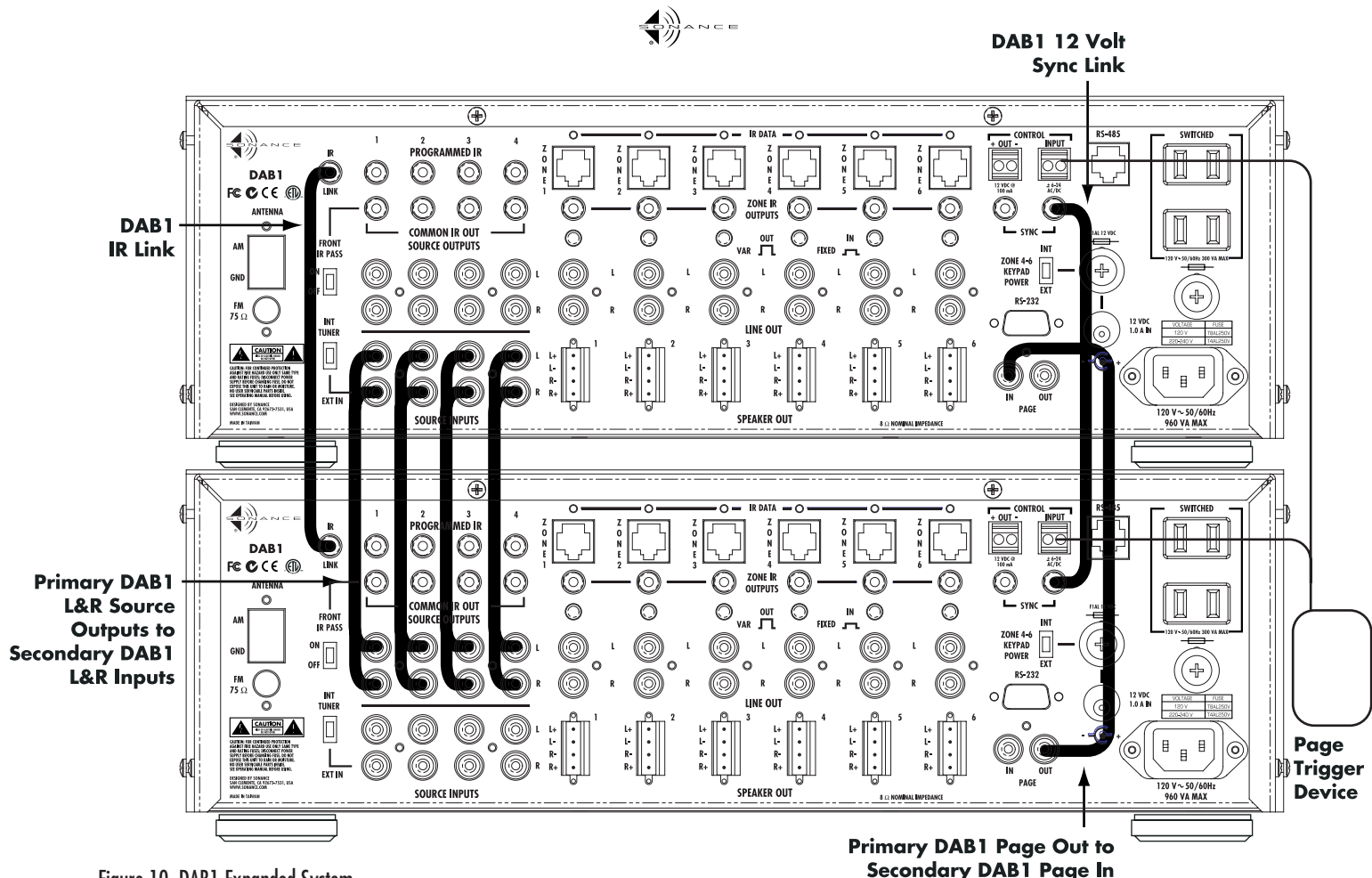
Figure 10. DAB1 Expanded System

emitter to the appropriate LOCAL IR OUT jack to limit control of a specific Source to a single Zone. e.g. The living room is Zone 1. The CD Changer is Source 2 and is to be controlled only from the living room. Connect the VE1 Emitter to the Zone 1 Local IR Out. Attach it to the IR window on the CD Changer. The L&R audio output from the CD Changer is connected to the Source 2 Input on the DAB1. In this configuration, only the Living Room can control the CD Changer, but all Zones can still select Source 2 and listen to the changer when it is playing. Each Zone's Volume and Mute commands remain independent.

IR Link – When using two DAB1 Controllers in an expanded system, connect the IR LINK jacks on the two units using a 3.5mm mono mini plug cable. Polarity: tip-signal, sleeve-ground. This will loop common IR codes between the two controllers. When using three or more DAB1 Controllers, use a mini-plug Y adaptor on the IR Link jack on the Primary DAB Controller to connect IR Link from the other two controllers. When using four Controllers, add an additional Y adaptor to one side of the Y adaptor plugged into the Primary Controller. *NOTE: IR Link only passes COMMON IR. It will not pass PRO-GRAMMED IR.*

Keypad Connections

IR Data Ports – Connect one CAT5 cable terminated with an RJ45 connector as defined in Figure 9 to the appropriate ZONE IR DATA IN Port for Keypad and IR control. When using two DAB1 Keypads in a Zone, use an RJ45 Y adaptor to connect the two keypads. When adding an IR receiver or other IR device

(K2 Keypad) use Sonance part # 92102 RJ45 Y to RJ45 and 4 conductor wire terminal.

External Keypad Power –

When Using up to Six DAB1 Keypads - Switch the Zone 4-6 KEYPAD POWER SWITCH to the INT position. No further action required.

When Using Sonance K1 or K2 Keypads - Switch the Zone 4-6 KEYPAD POWER SWITCH to the EXT position. Connect a 12VDC 1A power supply (Sonance part #91352 PS2 power supply) to the 12VDC 1.0A IN jack to provide power for Keypad Terminals Zones 4-6.

Speaker Connections –

1. Strip approximately 1/4" of insulation from each conductor and twist the strands until tight.

2. Be sure to maintain proper polarity by connecting the appropriate '+' and '-' leads from the speakers to their corresponding '+' and '-' terminals on the 4 screw plug-in connectors. L+ = W, L- = Gn, R+ = Rd, R-=Bk. Be sure connections are tight and that there are no frayed ends sticking out that could cause a short.

3. Connect the Plug-in Speaker Wire Connectors from each Zone to their appropriate Zone SPEAKER OUT Terminals on the back of the DAB1.

4. Speaker Outs are rated 8 ohm nominal. Low impedance loads will cause the amplifier to go into protection and shut down.

DAB1 Controller

DAB1 Zone 2 L&R line out (variable) to line input on Sonamp 2120T

Sonamp 2120T

Figure 11. High Power Zone

Sonamp 2120T L&R Speaker Level out to Sonance Silhouette II
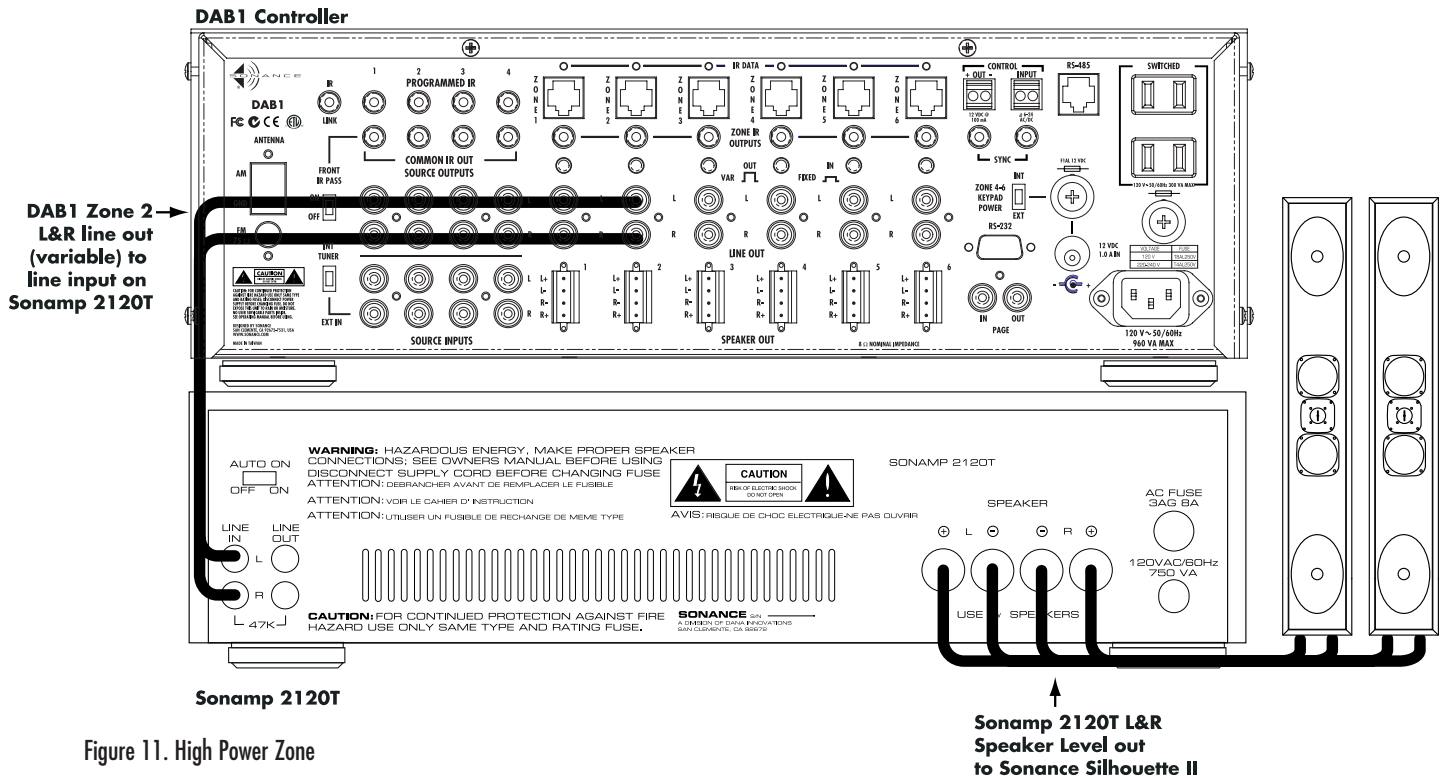
Line Out Connections (Figure 11)

When Using a High Power Amplifier in a Zone —

1. Set the Variable/Fixed Output Select Switch to VARIABLE, (OUT Position.)

2. Connect one RCA to RCA type cable from the appropriate L&R Zone LINE OUT Jacks on the DAB1 to the L&R Audio Input Jacks on the Amplifier to be used. This will allow Volume and Mute to be controlled with a Keypad or a properly programmed IR remote.

   NOTE 1: Do not press the variable/fixed select switch while DAB1 is operating. Doing so can produce high output levels that can damage the DAB1, the external amplifier or the speakers. NOTE 2: If using the Sonance 2120T amplifier, set the AUTO ON switch to the ON position. Any audio signal arriving at the left input jack will trigger automatic turn on circuitry. The amplifier will remain on after audio signal has ceased for approximately 3 minutes and shut off if no signal is detected. See: Sonamp 2120T Installation Instructions for additional information prior to installation.

When Using a Multi-channel Amplifier for Sub-Zone Expansion (Figure 12)

1. Set the Variable/Fixed Output Select Switch to FIXED, (IN Position.)

2. Connect one stereo RCA to RCA type cable from the appropriate L&R Zone LINE OUT Jacks on the DAB1 to the L&R Audio BUS Input Jacks on the Amplifier to be used. If using a twelve channel amplifier, this will allow adding six extra speaker pairs to a Zone. In this application, Volume and Mute for each additional speaker pair will be controlled using in-wall Volume Controls.

3. Connect the Control Out on the DAB1 to the 12V Control Input on the external amplifier (if available) to automatically power-up the external amp when any Zone on the DAB1 is ON (See Control Out Terminal, below). If using the Sonamp 1230, set the TRIGGER MODE Switch to EXTERNAL VOLTAGE.

4. Adjust the audio level to each room. If using the Sonamp 1230:

   a) Turn the 'Volume' controls on the back of the amp down, almost off.

   b) Set the Sub-Zone Volume Controls to maximum volume.

   c) With a source playing, adjust the volume controls on the Sonamp1230 for clean undistorted sound at each speaker pair. Set to maximum level desired for each room. *NOTE: DO NOT press the variable/fixed select switch while DAB1 is operating. Doing so can produce high output levels that can damage the DAB1, the external amplifier or the speakers.*

Control Out Terminal

1. Strip approximately 1/4" of insulation from each conductor and twist the strands until tight.

2. Be sure to maintain proper polarity by connecting the appropriate '+V' and 'GND' terminals on the DAB1 to the appropriate '+V' and 'GND' terminals on the device to be triggered. Be sure connections are tight and that there are no frayed ends sticking out that could cause a short.

3. Output: 12VDC @ 100mA when any Zone is ON. 0VDC when all Zones are OFF.
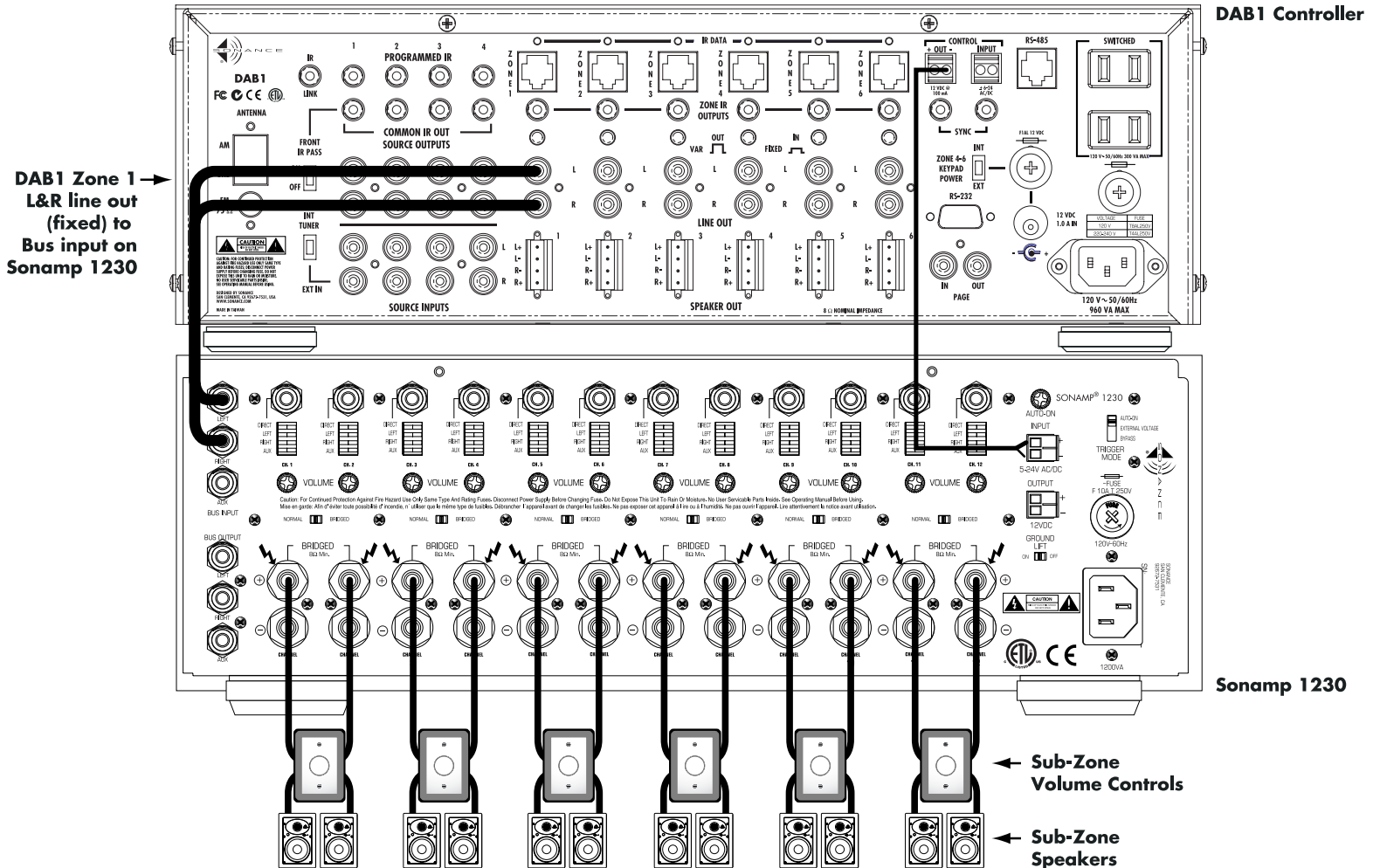
Figure 12. Sub-Zone Expansion

Paging(See Figure 10. Expanded System)

Control Input Connections

1. Strip approximately 1/4" of insulation from each conductor and twist the strands until tight.

2. Be sure to maintain proper polarity by connecting the appropriate '+V' and 'GND' terminals on the DAB1 to the appropriate '+V' and 'GND' terminals on the Paging triggering device. Be sure connections are tight and that there are no frayed ends sticking out that could cause a short.

3. When 6-24VDC is present on this terminal, all Zones set to 'Allow Paging' as configured with the DAB1 Program Manager, will switch to audio from the PAGE IN Jack.

   a) **Page IN** – Connect one mono RCA type cable from a line level audio output on a telephone system or microphone preamp to the PAGE AUDIO IN on the DAB1 Controller.

   b) **Page OUT** – Connect one mono RCA type cable from the PAGE OUT on the PRIMARY DAB1 to the PAGE IN on the SECONDARY DAB1, when using multiple DAB1s in an expanded system. Repeat with up to four DAB1 Controllers, (24 Zones). This will feed the Paging Audio signal to all zones configured for Paging with the DAB1 Program Manager.

Note: If your paging system provides only audio (no triggering voltage), we recommend the Radio Design Labs ST-ACR1 Stick-On model trigger device along with the Radio Design Lab power supply for that device. If you have questions on that product, contact Radio Design Labs@RDLnet.com or Sonance technical support at 800-582-0772 or 949-492-7777.

When using an expanded system (multiple DAB1s in a system) you must connect the paging trigger boltage to all DAB1s in the system in parallel.

Sync Connections – Connect one 3.5mm mono mini cable from the SYNC OUT on the PRIMARY DAB1 to the SYNC IN on the SECONDARY DAB1 when using multiple DAB1 Controllers in an expanded system. Repeat with up to four DAB1 Controllers, (24 Zones). **See Figure 10. Expanded System**. In a system with multiple Controllers, if any Zone configured for 'Party' Mode is turned ON with a Press and Hold, a sync code will be sent to the other DAB1 Controllers to turn ON all Zones configured for 'Party' Mode. The Primary Controller will then activate the source components (if connected to the switched AC outlets), feed Source and Paging audio signal to the Secondary Controllers as well as send IR control codes to the source components. At that point all Zone and System functions with the exception of Programmed IR will function the same as a single controller. (Programmed IR cannot be passed through IR Link when using multiple DAB1s.)

If no other Zones are ON and a Zone on a secondary DAB1 is turned ON with a press, only that DAB1 and that Zone will turn ON. Audio and IR will pass through multiple DAB1s in standby. Power for the source components should be managed separately or left ON.

Tuner Setup and Configuration

Internal Tuner/External Source 1 Setup and Configuration – See: 'CONNECTING THE DAB1 CONTROLLER / Source Component Connections' at the beginning of this section.

Antenna Connections

1. **FM 75 OHM** – Connect the included FM Dipole Antenna Assembly to the FM 75 OHM F-type terminal. Spread the 'arms' of the dipole and attach as high on the back of a wall unit or in an equipment cabinet as possible for best reception.

2. **AM** – Connect the included AM Loop antenna to the two wire spring clip terminal and position for best reception.

RS-232 Control Connections – Connect and secure one DB9 NULL cable to the RS-232 port on the DAB1 and to the appropriate RS-232 port on the control device/device to be controlled. RS-232 Port is NULL. RS-232 DB9 pinout: Pin 2: Rx (receive), Pin 3: Tx (transmit), Pin 5: GND (ground).

Rs-422 Control Connections – This port may not be currently active. Check www.sonance.com periodically for updates regarding this feature.

Switched AC Outlet Connections – Connect AC power cords of Source components into these outlets. DO NOT modify power strips by removing the ground plug to fit these outlets.

AC Power Connection – Connect supplied IEC 3-conductor line cord to provide AC power to the DAB1. Use only the supplied power cord or appropriate replacement. To prevent possible damage to the system and prevent electrical shock, do not plug into AC wall receptacle until all connections are made and verified.

ZONE CONNECTIONS

DAB1 Keypad Connections/Setup

Configuring Source Buttons – The Source Select Buttons on the DAB1 keypads can be configured to indicate the specific Sources available on the System. Source 1 is shipped with the Tuner icon already in place.

1. Do not remove any screws from keypad.

2. With keypad not connected, hold keypad face up.

3. Remove keypad bezel as shown in **Figure 13**. Be careful to not let the rubber button membrane fall off. Do not touch the circuit board.

4. Lay the keypad on its back

5. If using the DAB1 built-in Tuner, carefully remove the button cap for Source 2. (If using a Source other than Tuner for Source 1, start with the Source 1 button.)

6. Find the icon for the device connected to Source 2. Separate it from the icon sheet and place it on the rubber Source 2

button.

7. Replace Source 2 button cap.

8. Repeat steps 5-7 for all Source buttons on all keypads.

9. Snap the Keypad bezel back into place.

10. Test all buttons for free movement. If any of the buttons are tight or hang up, carefully remove, realign and replace the keypad bezel.
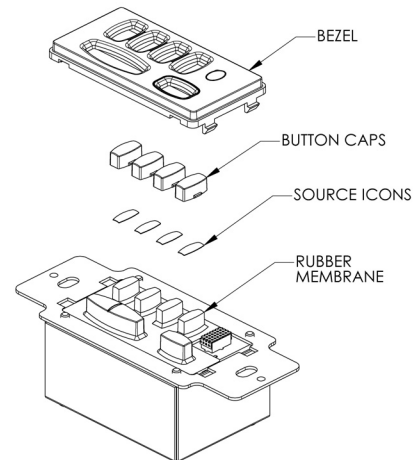
Figure 13. Configuring Source Buttons
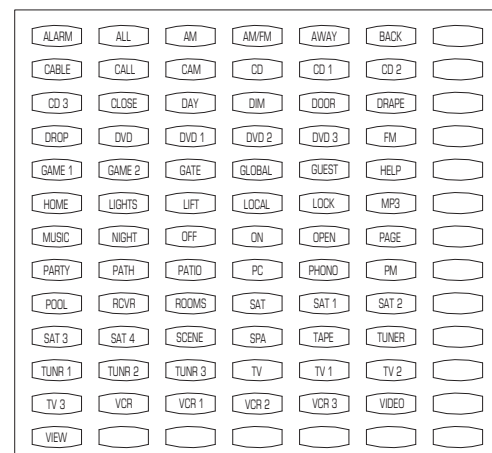
Figure 14. DAB Keypad Source Icons

Backlighting Jumper – The Backlighting jumper allows three levels of adjustment. The appropriate setting will be determined by the light conditions in a given room and user preference. Position 1=dim, position 2=bright, remove jumper to defeat backlighting. (OFF button green and red LEDs will remain active with backlighting jumper removed.) Using needle-nose pliers, carefully position the jumper to the desired position. Factory default = position 2 (bright). Keypad will function with Backlighting jumper removed. *NOTE: Unless the jumper is removed, Keypad backlighting is always ON even if the local Zone and all Zones are OFF.*

IR Receiver ON/OFF - Two position jumper turns the Keypad IR Receiver ON/OFF. The IR receiver in the keypad may need to be turned off for keypads that are in the direct path of sunlight or are saturated with bright light. Factory default: OFF.

Keypad Connection –

1. Terminate a CAT5 cable with an RJ45 connector as defined in WIRING/Keypads.

2. Connect Keypad to the System using the RJ45 jack on the Keypad. Mount in appropriate low voltage J-box as described in: INSTALLATION/Keypad Location and Mounting.

3. Finish with appropriately-colored decorator style trim plate (other color trim plates sold separately).

PROGRAMMING THE DAB1

The Instructions for DAB1 Program Manager are broken down into two sections. The first is a guide to the features of the program, with functional descriptions of the various menu options, to assist in understanding the DAB1 Program Manager.

The second section is the programming instructions. This includes step-by-step programming of a sample system. If you are experienced at programming Sonance K2 Keypads, you may want to go directly to this section.

Downloading the DAB1 Program Manager From the Internet

1. Using your Web browser, go to the following URL: www.sonance.com

2. When the Web page opens, locate the DAB1 page under Electronics. Follow the directions to download the DAB1 Program Manager.

3. Follow the on-screen instructions.

PROGRAM MANAGER PART 1 – FEATURES

DAB1 Program Manager Screen

File Menu

New – Select [icon] and left-click to START a NEW SYSTEM.

Open – Select [icon] and left-click to OPEN an EXISTING SYSTEM.
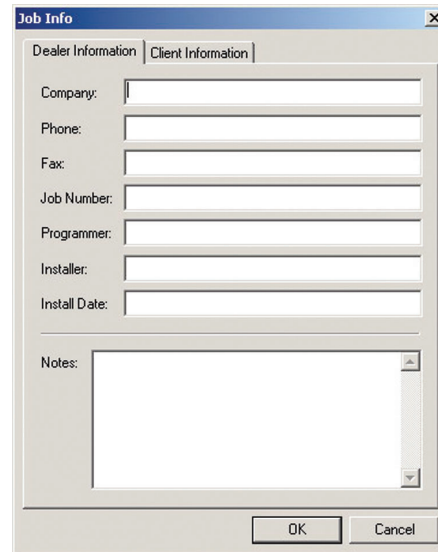
Save All Devices – Select and left click to SAVE ALL OPEN DEVICES. A Device is a DAB1 Controller and six keypads. A System can have more than one Device. e.g. an expanded system with 12 Zones would have two DAB1s…two 'Devices'.

Close System – Select and left click to CLOSE currently SELECTED SYSTEM.

Job Info – Select and left click. Choose tab for:
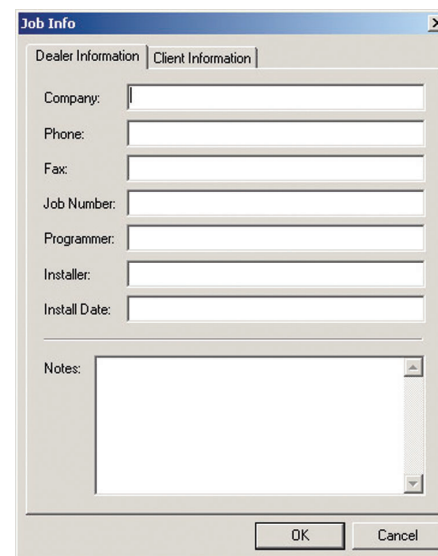
Dealer Info –Installation company name and job profile. Includes a 'Notes' option for record keeping of system design, changes, firmware upgrades, etc. This information is not transferred to the DAB1. It is only saved in the Program File.

Client Info – Client profile and job information. Includes key contact information for Client, Builder, General Contractor, Interior Designer, phone numbers, notes, etc. This information is not transferred to the DAB1. It is only saved in the Program File.

Figure 15. Job Info – Dealer

Figure 16. Job Info – Client

Device

Add New – Select and left click to ADD a new DAB1 to a SYSTEM.

Import – Select and left click to COPY a DEVICE from a DIFFERENT SYSTEM. Saves programming time by using existing System files. 'Imports' a copy of another System's program that can then be renamed, used as is, or modified to a new spec (different CD player etc).

Delete – Select and left click. DELETES the DEVICE selected in the PROGRAMMING WINDOW.

Rename – Select and left click. A text box will open with a prompt to enter a NEW NAME for the SELECTED DEVICE.

Duplicate – Select and left click to make a COPY of the DEVICE selected in the PROGRAMMING WINDOW. A text box will open with a prompt to enter a new name for the selected device. This function is useful for 'cookie cutter' jobs where a System design is used over and over. i.e. open the 'Jones' System and save as the 'Smith' System. It is also useful for expanded systems with multiple DAB1 Controllers with similar programming.

Close – Select and left click to CLOSE the DEVICE selected in the PROGRAMMING WINDOW. This only closes the DEVICE Zone Keypad/Panel Window, the Device remains available as part of the SYSTEM open in the SYSTEM WORKSPACE.

Save – Select [disk icon] and left click to SAVE CHANGES to the DEVICE selected in the PROGRAMMING WINDOW.

Check Memory Usage – Select and left click to display the amount of memory that buttons, commands, and macros are using in a single Device's memory. If memory is exceeded, the 'Free' line will show a negative value and will be flashing red. The other lines will show what programming features are using the most space. If necessary, modify the program by simplifying macros. *NOTE: The DAB1's memory has capacity in excess of what will typically be used. It is highly unlikely that this capacity will be exceeded. If capacity is exceeded, check Device Program to be sure commands and macros have not been unnecessarily duplicated.*

Figure 17. General Setup

General Setup – Select and left click to configure the following Device functions:

Allow Page Trigger – Select (check mark) or deselect (no check mark) to ENABLE or DISABLE the 12 VOLT CONTROL INPUT on the back of the DAB1 Controller. This option must be selected to in order to use the Paging feature.

Front Panel IR Receiver Zone Select – Left click on the pull-down arrow to select which ZONE (or NONE for no zone) the IR RECEIVER on the FRONT PANEL of the DAB1 Controller will control via IR remote. Factory Default: Zone 1.
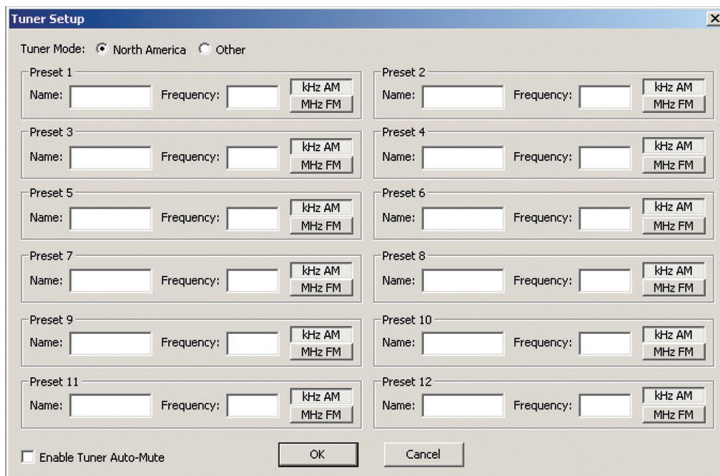
Figure 18. Tuner Setup

Tuner Setup – Select and left click to program a total of 12 AM or FM stations.

NOTE: Tuner Presets can also be programmed using the Front Panel

buttons. *Set the band (AM/FM) and the frequency for the station to be programmed. Press and Hold the front panel Preset button to be programmed for 2 seconds.*

Tuner Mode – Select NORTH AMERICA or Other for appropriate bandwidth depending on location.

Name – Enter the CALL LETTERS (i.e. KLWS) or MUSIC GENRE (i.e. ROCK) in this block. Maximum letters per block: 8 depending on the letters. If the preference is to show the station TUNING FREQUENCY, do not enter anything into this block.

Frequency – Enter a station TUNING FREQUENCY to set the station to be selected with the corresponding PRESET. A station tuning frequency must be entered to set DAB1 Tuner Presets when using Program Manager.

Enable Tuner Auto-Mute – Enable to defeat inter-station noise. Factory Default: OFF.

kHz AM – Left click to make PRESET an AM station.

MHz FM – Left click to make PRESET an FM station.
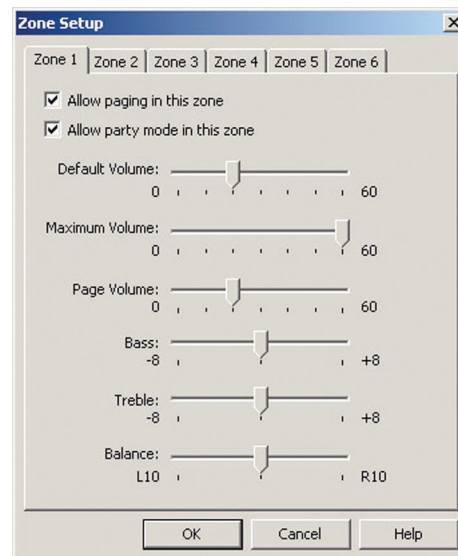
Figure 19. Zone Setup

Zone Setup – Select and left click to open ZONE SETUP Window. Left click on the tab of the ZONE to be configured and make adjustments as needed for:

Allow Paging - Select (check mark) or deselect (no check mark) to ENABLE or DISABLE PAGING in a given ZONE. *NOTE: Be sure to enable ALLOW PAGE TRIGGER in GENERAL SETUP or Paging function will not activate.*

Allow Party Mode - Select (check mark) or deselect (no check mark) to ENABLE or DISABLE PARTY MODE in the ZONE. Party Mode links Zones for Status (ON/OFF), Source and Mute. When a SOURCE is selected with a PRESS AND HOLD, any ZONE enabled for PARTY MODE is turned ON. Any Zones in Party Mode already ON, will switch to the selected Source. Each Zone will turn ON to its Default Volume level. Each Zone will retain independent Volume Control.

Default Volume – Move slider to set the TURN ON VOLUME in a ZONE. The Zone will always turn on to the same Volume regardless of the level set when the Zone was turned OFF. Zones in Party Mode will turn on to their respective Default Volume settings.

Maximum Volume – Move slider to set the MAXIMUM VOLUME in a given ZONE. Set to a level that eliminates distortion and prevents overdriving speakers to avoid damage.

Page Volume – Move slider to set the PAGING VOLUME in a ZONE. Set to a level that allows voice from Paging device to come through to Zone speakers clearly, without distortion or overdriving speakers. *NOTE: Be sure to check Paging Volume with the actual paging device after System is installed, to correct settings for too low/high a level, feedback, etc.*

Bass – Move slider to set BASS level in a ZONE.

Treble – Move slider to set TREBLE in a ZONE.

Balance – Move slider to set BALANCE in a ZONE.

NOTE: Any changes made to Zone Setup from the Front Panel Menus, are non-volatile should AC power be lost. These changes can also be uploaded to Program Manager for archiving and further editing.
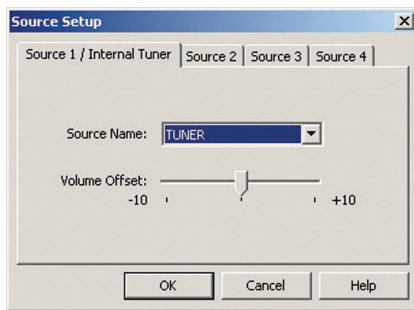
Figure 20. Source Setup

Source Setup – Select and left click to open SOURCE SETUP WINDOW. Left click on the tab for Source 1-4 to set:

Source Name – Places the ICONS on the SOURCE SELECT BUTTONS for the DEVICE selected in the PROGRAMMING WINDOW.

1. Source 1/Tuner tab defaults to Tuner. If using the internal Tuner, adjust Volume Offset (see Volume Offset below).

2. If using an external source for Source 1, left click the pull down arrow and select the name of the component to be used. Adjust Volume Offset (see Volume Offset below). Click OK. The source icon will change on all Keypads for the Device selected in the Programming Window.

3. Repeat Step 2 for Sources 2-4.

Volume Offset – Move slider to adjust the INPUT LEVEL of SOURCE COMPONENTS. This control allows 'balancing' the output levels of different Sources so they play at (or near) the same volume.

1. Load program material (CD, DVD, cassette or video tape) into all components or set the Tuner to a strong station. Try to use similar program material, (all rock, all jazz, all classical etc) with similar characteristics so adjustments reflect

the OUTPUT LEVEL of the component not differences in PROGRAM MATERIAL.

2. Play all sources.

3. Starting with Source 1/Tuner, switch through the Sources to get a feel for the relative audio level of the Sources.

4. Make adjustments in DAB1 Program Manager as needed to compensate for different levels.

5. Connect the USB programming cable to the PC and DAB1 USB Programming Port.

6. In the Communications Menu pulldown, select SEND TO DEVICE.

7. Click the SEND button to transfer the program information.

8. Disconnect USB Programming Cable.

9. Manually switch through the sources to test changes.

10. Repeat steps 3-8 as needed until all Sources play at approximately the same level.

Edit Menu

Undo – Select and left click to correct mistakes. This will remove the last data programmed and restore previous data.

Cut – Using the SELECT BUTTON Tool in the lower left corner of the Program Manager Window, left click the BUTTON with the data to be cut. Select and left click CUT in the EDIT pull down. The data will be removed from that location and saved on the clipboard to be pasted to another button if desired. *NOTE: Only the data in the selected level, (Press, Press and Hold, Double Press) will be cut. The other levels will be unaffected.*

Copy – Using the SELECT BUTTON Tool in the lower left corner of the Program Manager Window, left click the button with the data to be copied. Select and left click COPY in the EDIT pull down or RIGHT CLICK and select COPY BUTTON. This will place a copy of data selected on the clipboard to be pasted to another button if desired. *NOTE: Only the data in the selected level, (Press, Press and Hold, Double Press) will be copied. The other levels will be unaffected.*

Paste – Using the SELECT BUTTON Tool in the lower left corner of the Program Manager Window, left click the button where data is to be copied. Select and left click PASTE in EDIT pull down. Data will be reproduced in new location without deleting original data. *NOTE: Only the data in the selected level, (Press, Press and Hold, Double Press) will be pasted. The other levels will be unaffected.*

Delete – Using the SELECT BUTTON Tool in the lower left corner of the Program Manager Window, left click the button where data is to be deleted. Select and left click DELETE in EDIT pull down or RIGHT CLICK and select DELETE MACRO. Data will be removed. *NOTE: Only the data in the selected level, (Press, Press and Hold, Double Press) will be deleted. The other levels will be unaffected.*

Communications Menu

Select and left click to access options to transmit and receive data to and from the DAB1. If the PC is unable to communicate with the DAB1, the COMMUNICATIONS Error Window will open. (See Figure 21). Be sure the DAB1 has power. Check Port selection to be sure the PC is communicating through the proper port. Check USB cable connection at PC and DAB1 Controller.

Figure 21. Communications Error

Figure 22. Firmware Version Info

Get Firmware Version – New features and functions can be added from time to time to improve system capability and performance. It may be necessary to upgrade the Firmware to enable new features or enhance performance.

1. With the PC connected to the DAB1 with the USB Programming Cable, Select and left click GET FIRMWARE VERSION to query the DAB1 for Firmware version.

2. FIRMWARE VERSION INFO Window will open. (See Figure 22). To find the latest available firmware upgrade, go to the Sonance website: www.sonance.com, locate the DAB1 under the Electronics section and click on Downloads. If the Version # in DOWNLOADS is higher than the Version # in the DAB1 it may be necessary to upgrade the firmware. (If the System is performing properly, we recommend that you not make unnecessary changes.) NOTE: A Press and Hold of the Zone Function Select Button on the DAB1 Front Panel for 10 seconds will show Firmware version in the System Status Window on the DAB1 Front Panel. Press ON/OFF button to return to menu.

Upgrade Firmware

Note: Before you can use the DAB1 Program Manager Software to program, the DAB1 via the USB port, you must initialize the DAB1 to your computer. To do this, provide power to the DAB1 then plug in the USB cable. Your computer should recognize the DAB1 and automatically install the required drivers to the appropriate folders. If your computer does not recognize the DAB1, you can also go to the Device Manager (under Control Panel>System>Hardware>Device Manager) and induce the computer to scan for new hardware attached by selecting Scan under the Action option at the top of the window.

To upgrade firmware:

1. From the Sonance website (see above), click the link for DAB1 Firmware; latest Version.

2. When the FILE DOWNLOAD Window opens, select SAVE.

3. SAVE the FIRMWARE FILE to a convenient location.

4. Select and left click COMMUNICATIONS in the Program Manager Menu Bar.

5. Select and left click UPDATE FIRMWARE.

6. The SELECT NEW FIRMWARE IMAGE Window will open.

7. Navigate to the location where the Firmware file was saved.

8. Select and left click the file.

9. DAB Program Manager Warning will open with a warning to: SAVE THE PROGRAM IN THE DAB1 if that program is to be used after firmware upgrade. (See: 'To Save a Program From a DAB1' below).

10. Click Cancel to save program or:

11. Click OK. Firmware will be upgraded. (The program in the DAB1 will be erased).

12. To reprogram a DAB1 with an existing Device Program after a Firmware upgrade, proceed to: Send to Device (Download) below.

    NOTE: If the Communications Window opens after step 11, unplug and reconnect the USB cable. The Program Manager will automatically send the Firmware update.

Receive From Device (Upload)

To Save a Device Program From a DAB1 as a New SYSTEM:

1. In the FILE menu, select and left click CLOSE SYSTEM. All open Devices will close.

2. In the FILE pull-down menu, select and left click NEW.

3. Type UNTITLED in the CREATE NEW SYSTEM FILE NAME text block.

4. Left click SAVE. An UNTITLED DEVICE will open.

5. In the COMMUNICATIONS pull-down menu, select and left click RECEIVE FROM DEVICE.

6. The DAB1 Program Manager will UPLOAD the DEVICE PROGRAM from the DAB1 Controller, place the Device in the SYSTEM WORKSPACE and open the KEYPAD WINDOW using the uploaded Device Program's File Name. (eg. Smith Residence)

7. In the PROGRAMMING WINDOW, select the DEVICE titled UNTITLED.

8. In the DEVICE pull-down menu, select and left click DELETE.

9. The DAB Program Manager will open with the warning: "'Untitled System' will be deleted. Are you sure?" Click YES. Untitled System will be deleted, leaving the Device Program from the DAB1 on screen.

10. If upgrading Firmware, return to section 'To Upgrade Firmware' above and follow the instructions.

11. To ARCHIVE (Save) the uploaded Device Program as a NEW SYSTEM, in the FILE pull-down menu, select and left click CLOSE SYSTEM. Device will close with the existing Device Program Name.

a) To RENAME the uploaded Device Program, in the DEVICE pull-down menu, select and left click RENAME. Type an appropriate file name and click OK.

b) In the FILE pull-down menu, select and left click CLOSE SYSTEM. Device will close.

NOTE: To UPLOAD a DEVICE PROGRAM and add it to an EXISTING SYSTEM, OPEN the System from FILE>OPEN, and use STEPS 5, 6, 10 (if necessary) and 11 above. Uploading and closing a Device Program in an open SYSTEM, will ADD the uploaded Device to the open SYSTEM.
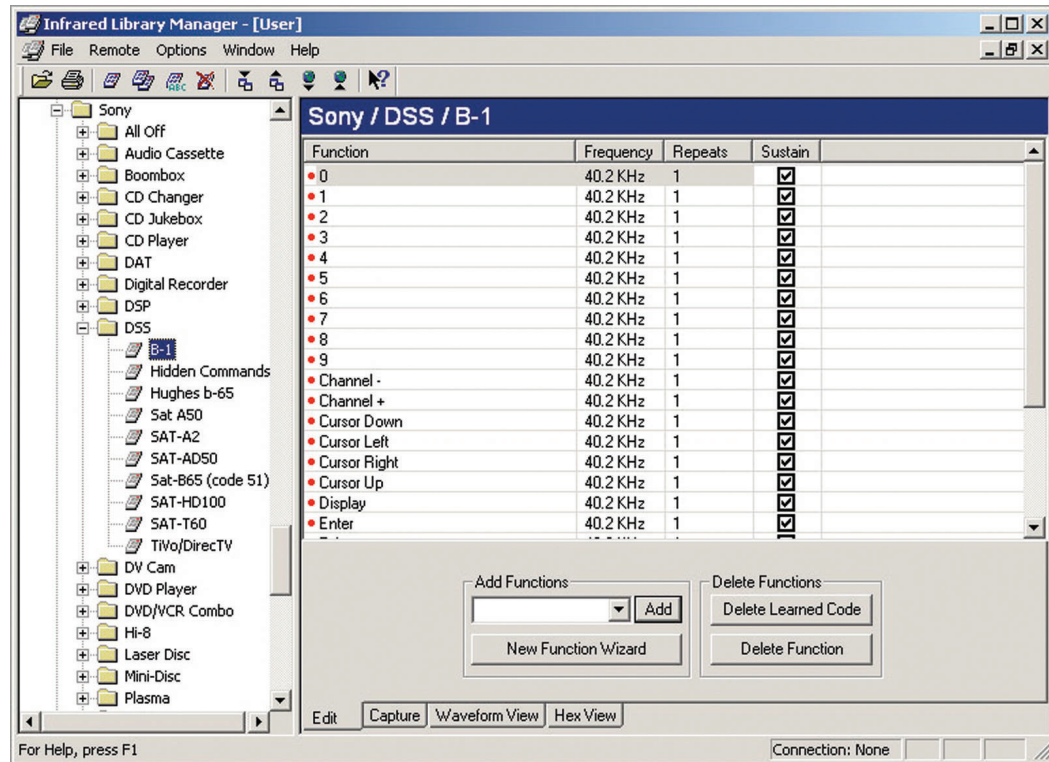
Figure 23. Infrared Library Manager

Send to Device (Download)

To Send a Device Program to a DAB1:

1. In the COMMUNICATIONS pull-down menu, select and left click SEND TO DEVICE.

2. The DEVICES IN THE CURRENT SYSTEM Window will open. If multiple Devices are posted in the System Workspace Window, they will all be listed in the 'Devices in the Current System' Window.

3. Identify the Device to be downloaded.

4. If modifications have been made to a Device Program, STATUS will indicate: NEEDS UPDATING. Be sure modifications are correct before proceeding.

5. If modifications are correct, click the SEND Button for the Device to be downloaded.

6. If the Download is successful, STATUS will change to UP TO DATE.

7. If other Devices need Downloading, repeat steps 3-6 as needed.

8. When finished with Downloads, click CLOSE in the Devices in the Current System' Window.

Library

This section only defines the features in IR Library - what they are, and how they are used. For programming information see section: Using the IR Library.

IR Library Manager Features

File

New – Select and left click to CREATE a NEW IR CODE LIBRARY.

Open – Select and left click to OPEN an IR CODE LIBRARY to program a Device. If another Library is open, it will close and selected Library will open.

Close – Select and left click to CLOSE the currently SELECTED IR CODE LIBRARY. Library Manager will remain open.

Save As – Select and left click to SAVE A COPY of the currently SELECTED LIBRARY under a DIFFERENT NAME.

Print – Select and left click to PRINT a list of ALL REMOTES in the currently SELECTED LIBRARY by MANUFACTURER, TYPE and MODEL.

Print Preview – Select and left click to get an ON-SCREEN IMAGE of the currently SELECTED LIBRARY for review prior to printing.

Print Setup – Select and left click to change printer and paper settings if problems occur in PRINT.

Exit – Select and left click to CLOSE LIBRARY MANAGER.

Remote

New – 🖼 Select and left click to ADD a NEW REMOTE to the currently SELECTED IR CODE LIBRARY.

Duplicate – 🖼 Select and left click to create a COPY of a REMOTE with a NEW NAME. This is useful in creating different remotes for the same component where in some projects, only basic codes will be needed, (PLAY, STOP etc) where in others, full control is desired, (direct numeric access of track, disc etc.)

Rename – 🖼 Select and left click to CHANGE the NAME of the currently SELECTED REMOTE. The Manufacturer and Type can also be changed if a remote can be used on more than one brand or component.

Delete – 🖼 Select and left click to REMOVE the currently SELECTED REMOTE from IR Library.

Import – 🖼 Select and left click. The Import From IR Library Window will open. This allows ADDING REMOTES from the Master Library or other Libraries when working with 'edited' libraries of select remotes.

Export – 🖼 Select and left click to CREATE a SUBSET of remotes typically used.

Import From Internet – 🖼 Select and left click to connect to the Remote Technologies website Internet Command Library. This is an ONLINE DATABASE of IR REMOTE FILES that have been created and made publicly available for the DAB1 and other Sonance programmable devices. Navigate the list to the Manufacturer, Type and Model desired. Left click IMPORT. The file will be saved to the currently selected IR Code Library.

Export to Internet – 🖼 Select and left click to connect to the Remote Technologies website to upload IR remote files to be posted on the site for use by other users

Options
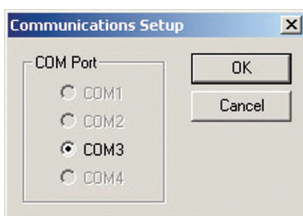
Figure 24. Set COM Port

Set COM Port – Select and left click to open the COMMUNICATIONS SETUP Window. SELECT the COM PORT to be used to communicate with the DAB1. *NOTE: Learning IR codes can only be done through the DAB1 RS232 port. If the PC being used only has USB Ports, a SERIAL TO USB CONVERTER such as the IOGEAR GUC232A or Radio Shack 26-183 must be used. This converter is available at most computer stores.*

Compact Library - Similar to a hard drive 'defrag' when remotes have been deleted from a Library.

Window

Toolbar – Select and left click to HIDE or UNHIDE the TOOLBAR from the IR LIBRARY MANAGER Window.

Status Bar – Select and left click to HIDE or UNHIDE the STATUS BAR from the IR LIBRARY MANAGER Window.

Cascade – Select and left click to LAYER all OPEN DEVICE WINDOWS from the upper left corner of the PROGRAMMING WINDOW.

Arrange Icons - Arranges icons of all minimized view windows in rows at the bottom of the Program Manager Programming Window.

Help

Help Topics – Select and left click to get helpful tips and instructions for questions regarding IR Library Manager.

What's This? – 🖼 Select and left click for helpful explanations of IR Library Manager.

About Library Manager - Select and left click for information on IR Library Manager version number, copyright information and a link to sonance.com.

Edit Tab - Default Tab in Library Manager.

IR COMMANDS can be ADDED, MODIFIED and DELETED in EDIT. (See Figure 23 Infrared Library Manager).

Function – The NAME of the Remote FUNCTION associated with an IR CODE (Play, Stop, and Volume UP).

Frequency – The CARRIER FREQUENCY of an IR CODE in the Code Library or a learned code. Most IR codes are modulated at around 38 kHz. The DAB1 can learn, store and output IR commands from 20 kHz to 120 kHz.

Repeats - The number of times a code repeats itself from a single button press. Repeating commands can be helpful when commands do not work reliably.

Sustain – When enabled, a 'sustained' code will repeat as long as a button is being held down.

Learning IR Codes

Add Functions Box – The functions in this box allow ADDING IR COMMANDS to New Remotes or Remotes in the IR Library Manager. The pop up will list the most common remote control functions associated with the selected component. Special functions or functions not found in the pop up can be added by typing the function name into the text box next to the ADD button.
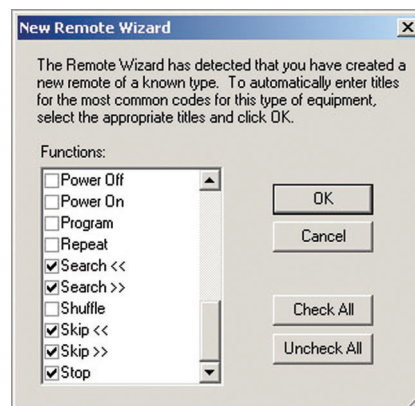
Figure 25. New Function Wizard

New Function Wizard – A shortcut for identifying the functions to be learned for a new remote or added to an existing remote. (See Figure 25 New Function Wizard).

Check All – SELECTS ALL remote functions for the selected component to be added to the FUNCTION LIST when learning or adding IR codes.

Uncheck All – DESELECTS ALL remote functions for the selected component to be added to the FUNCTION LIST when learning or adding IR codes. Functions can be individually selected or typed into the text block.

Delete Functions Box

Delete Learned Code – Select and left click to DELETE the IR CODE selected in the Remote FUNCTION List. The FUNCTION will remain in the list but the IR CODE will be REMOVED. This is useful if a particular code does not work or has not been learned correctly.

Delete Function – Select and left click to REMOVE a FUNCTION and its IR CODE. This would only typically be done when customizing remotes and deleting functions that will NEVER be used. *NOTE: Once a code has been deleted it cannot be recalled. Undo does not function in this area. (This is why IR Library runs on a copy of the Master Library…just in case codes get accidentally deleted.)*

Capture Tab – IR commands are learned in CAPTURE. *Note: The procedure for learning new IR codes is explained in "Learning IR Codes" on page 25 and in "Capture IR Codes, on page 26.*

Enable Capture - Left click to put Library Manager into LEARN Mode. This function will typically enable itself, when PC and DAB Controller are properly connected when learning IR codes. See: Using the IR Library/Capture IR Codes. *NOTE: IR commands can only be learned with Capture Tab selected.*
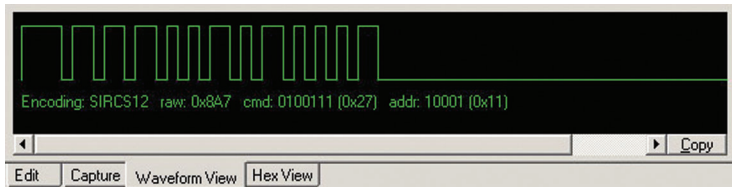
Figure 26. IR Library Waveform View

Waveform View Tab – IR Code waveforms can be viewed in WAVEFORM VIEW. They cannot be edited in this mode.
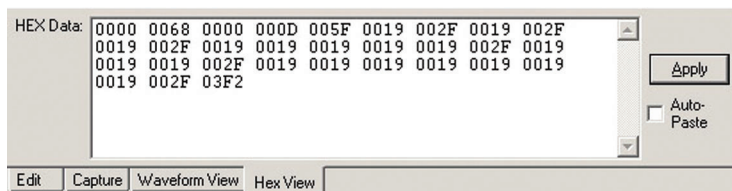
Figure 27. IR Library HEX View

Hex View Tab – Hex Code equivalent values for IR codes can be viewed in HEX VIEW.

HEX Data – Hex code equivalent for selected IR function. Hex code data can be entered into this window to copy codes from other applications. IR commands can be created from this hex data.

Apply - Press to apply (save) the hex data to a selected function. Library Manager will interpret the data, create an IR code, and fill in the Frequency, Repeats, and Sustain fields as appropriate. The new code can also be viewed in Waveform View.

Auto Paste - Check box to automatically paste Hex data copied from other applications or sources. Copy Hex data from source. Data will be automatically pasted to Hex Data Window. IR Library will create IR command from data.

Using the IR Library

The DAB1 Program Manager comes with an extensive IR Code Library consisting of thousands of IR commands for most brands and components that would likely be used in a whole house audio system. On occasion, there may be a particular component or command that is not in the library. IR commands can be added in two ways. One is to learn the command and add it to the IR Library Manager. The other is to import codes from the RTI Internet Command Library.

NOTE: The MASTER IR LIBRARY cannot be opened directly. To use the MASTER IR LIBRARY commands in PROGRAM MANGER, a NEW LIBRARY must be created. (This preserves a clean copy of the Master IR Library to prevent codes from being deleted or improperly edited.)

To create a NEW LIBRARY:

1. With DAB Program Manager Running, Select LIBRARY in the PROGRAM MANAGER menu bar.

2. Select and left click IR LIBRARY MANAGER from the pull down. The Infrared Library Manger Window will open.

3. Select and left click FILE in the IR LIBRARY menu bar.

4. Select and left click NEW in the FILE pull down. The CREATE IR LIBRARY Window will open. The COMMAND LIBRARIES Folder should be open in the SAVE IN window.

5. Enter a meaningful name, (Master Copy, IR Command Library, etc) in the FILE NAME text block.

6. Click SAVE. The CREATE IR LIBRARY Window will close and the new Folder will appear in the window on the left side of Library Manager.

7. Select and left click REMOTE in the Infrared Library Manager Menu bar.

8. Select and left click IMPORT from the Remote pull down. The IMPORT FROM IR LIBRARY Window will open.

9. Select and left click MASTER. IR Library Manager will automatically copy all contents of MASTER to the new folder. When complete, the IMPORT SUCESSFUL Window will open. This is a list of all the remotes copied to the new folder. Scroll through the list for reference and click OK when finished. The IMPORT SUCCESSFUL Window will close.

At this point, all Brand/Component/Remote Folders will be open. To clean up:

10. Select and left click FILE in the IR Library Manager menu.

11. Select and left click CLOSE from the File pull down. The Library will close.

12. Select and left click OPEN from the File pull down. The OPEN Window will open. Select and left click the file name for the library to be opened. The library will open, listed by brand.

To open component folders by brand:

13. Left click on the + icon next to the brand name. A sub-directory of components (CD, DVD etc) will open.

14. Left click the + icon next to the type of component to be controlled. A sub-directory of remotes will open.

15. Left Click the specific remote to be used. The IR Commands for that remote will appear in the main IR Library Window on the EDIT tab.

Editing IR Commands

Typically, the commands in the IR Library will work without editing.

To Edit an Existing Command:

Function

1. Left click on the FUNCTION name. The name will be HIGH-LIGHTED.

a) Type in the name and/or add the symbol desired. The new name will be applied any time that command appears in a list or is programmed to a macro.

b) Left click any other field (grid space) to SAVE.

Frequency

1. Left click in the FREQUENCY field for the function frequency to be changed. The frequency will be HIGHLIGHTED.

a) Type in the new frequency. The new frequency will be applied with any use of that command in a macro. Typically there should be no need to change a command's frequency. A component may not respond to a command at the wrong frequency.

b) Left click any other field to SAVE.

Repeats

1. Left click in the REPEATS field for the function repeats to be changed. The repeat number will be HIGHLIGHTED.

a) Type in the new value. The new value will be applied with any use of that command in a macro. Typically there should be no need to change the number of repeats. A component may not respond to a command at the wrong value.

b) Left click any other field to SAVE.

Sustain

1. Left click in the SUSTAIN Box for the function sustain to be changed.

a) Check this box to control whether or not the IR code should be repeated if the button is held down.

b) The new value will be applied with any use of that command in a macro. Typically there should be no need to

change the number of repeats. A component may not respond to a command at the wrong value.

c) Left click any other field to SAVE.
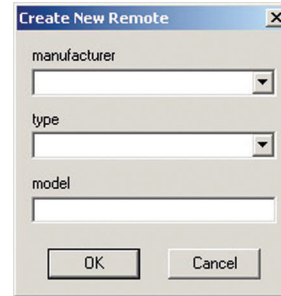
Figure 28. Create New Remote

LEARNING IR CODES

New Codes must be learned (captured) into the IR Library either as part of an entirely new remote ("Add New Remote, below), or as new function or codes as part of an existing remote ("Add Functions, "Delete Functions", Delete Learned Code", below). Please read those sections before attempting to capture new IR codes.

Add New Remote

In the unlikely event that a particular brand or component is not in the default IR Library, a NEW REMOTE can be ADDED to the LIBRARY.

1. With DAB Program Manager running and IR Library open, select and left click REMOTE in the IR LIBRARY menu bar.

2. Select and left click NEW in the REMOTE pull down. The CREATE NEW REMOTE Window will open.

3. Type the name of the brand to be added in the MANUFAC-TURER text block or:

a) Scroll through the pull down list and left click on the Manufacturer to be added. The Manufacturer name will appear in the text block.

4. Type the name of the type of component (CD, DVD etc) to be added in the TYPE text block or:

b) Scroll through the pull down list and left click on the type of component to be added. The component name will appear in the text block.

5. Press the keyboard TAB or left click in the MODEL text block and type in the model # of the Component to be added to the library.

6. Click OK. The Create New Remote Window will close. The new Manufacturer/Type/Model will be added to the Remote List on the left side of Library Manager.

7. Navigate the Remote List.

8. Select and left click the Manufacturer/Type/Model to be programmed. A list of default functions for the type of component selected in step 4 will appear in the Command List. If additional functions are required, proceed to step 2 in ADD FUNCTIONS below. If all functions needed are listed proceed to CAPTURE IR CODES below.

Add Functions

To add new functions to a remote:

1. With DAB Program Manager running and IR LIBRARY open, navigate the REMOTE LIST and select the remote for the component for the brand to be used.

2. If a command is missing from a remote:

a) Type in the name of the function in the ADD FUNCTIONS text block, or:

b) Use the pull down to locate the command to be added and left click that command. The command will appear in the text block.

c) Left click ADD. The command will appear in the Function List in the Main IR Library Window.

d) Repeat step 2a-c for all commands to be added to the remote. OR:

1. Left click the NEW FUNCTION WIZARD Button. The NEW REMOTE WIZARD Window will open.

a) Scroll through the list to review which commands are selected by default to be added. If OK, left click OK. All selected commands will be added to the Function List.

To select specific commands from the New Remote Wizard:

1. Left click the NEW FUNCTION WIZARD Button. The NEW REMOTE WIZARD Window will open.

2. Left click the UNCHECK ALL Button. All functions will be deselected.

3. Scroll through the Functions and left click in the boxes of the commands to be added to the Function List.

4. Left click OK. The NEW FUNCTION WIZARD Window will close. The selected functions will be added to the Function List.

5. Review Function List to be sure all desired commands have been added.

Delete Functions

To remove commands from the Function List:

1. In the Function List, left click the FUNCTION to be DELETED. It will be HIGHLIGHTED.

2. Left click the DELETE FUNCTION Button. The function will be removed from the Function List. *NOTE: Once a function has been deleted from the Function List, it cannot be recalled. Undo does not work in this area. The function would have to be added and re-learned to be returned to the Function List.*

Delete Learned Code

To remove the code for a function in the Command List: (This will erase the code but leave the function in the list. This is useful if a new code is not learned correctly or if a code in the library doesn't work.)

1. In the Function List, left click the FUNCTION of the CODE to be DELETED. It will be HIGHLIGHTED.

2. Left click the DELETE LEARNED CODE Button. The code for that function will be removed from the Function List. The code will need to be relearned or reloaded from the Master Library.

Capture IR Codes

Capturing IR codes requires that the DAB1 Controller and the PC be connected via a Serial connection from the RS-232 port on the back of the DAB1 to a Serial Port on the PC. For a PC that does not have Serial Ports, but does have USB Ports, a USB to Serial converter such as the IOGEAR GUC232A or Radio Shack 26-183 can be used. This connection MUST be to the RS-232 Port on the DAB1 Controller to capture IR codes. IR Codes cannot be captured via USB.

NOTE: The DAB1 can learn IR commands with a carrier between 20 kHz and 120 kHz.

NOTE: The RS-232 Port on the DAB1 Controller is NULL. It may be necessary to use a Null Modem Adaptor with the USB: Serial Converter.

To capture IR Commands to a REMOTE in IR LIBRARY MANAGER:

1. Connect PC to DAB1 Controller via the RS-232 Port on DAB1 Rear Panel. DAB1 must have AC power, but does not need to be turned ON.

2. With DAB1 Program Manager running and IR LIBRARY open, navigate the REMOTE LIST, select and left click the REMOTE for which the codes are to be captured. The functions for the remote will appear in the FUNCTION LIST Window.

a) Add functions as needed and described in Section: ADD FUNCTIONS above or:

b) If the Manufacturer, Type and Model of Remote to be used are not in Library Manager, add a new Remote as described in Section: ADD NEW REMOTE, above.

3. PRESS AND HOLD the SEL Button on the DAB1 Controller Front Panel until the Status Window reads: SYSTEM MENU (approximately 10 seconds).

a) PRESS SEL again. The Display should read: IR CAP: ALIGN MODE.

b) Aim the remote to be learned at the IR receiver on the DAB1 Front Panel.

c) Press any button on the Remote.

d) The Front Panel Status Window should read: FREQ: 38.0KHZ SIG. This indicates the DAB1 is 'reading' the remote and is ready to send data to IR LIBRARY Manager. (The frequency may vary given the modulation frequency of the remote.)

e) Release the Remote button, SIG will drop from the display.

f) Press the ZONE FUNCTION VALUE DOWN Button once. (Down button directly above the SEL Button.) The Front Panel Status Window should read:

 IR CAP: LEARN MODE READY.

4. With the IR Library Manager EDIT TAB selected, select and left click the FUNCTION for the IR code to be captured. It should be HIGHLIGHTED in light gray.

a) Select and left click the CAPTURE tab. The selected FUNCTION should remain Highlighted.

b) The ENABLE CAPTURE Button should appear selected and a message: 'Press and HOLD the 'XXXX' button on the

source remote' at the bottom of the CAPTURE Tab will indicate IR Library Manager is ready to capture the IR code.

c) Press and hold the button on the remote until the Status display reads: CAPTURED.

d) The IR code modulation frequency, number of repeats and sustain status will appear in the Function List. A RED DOT next to the Function name indicates there is an IR code in the data base for that function.

e) Library Manager will automatically advance to the next function code to be learned for that remote, if any. Repeat step 4c as needed.

f) If any other codes need to be learned to existing or new remotes, repeat steps 4a-e as needed.

5. Close Library Manager when all codes have been learned. All IR codes will be saved and should be available for programming in Macro Editor.
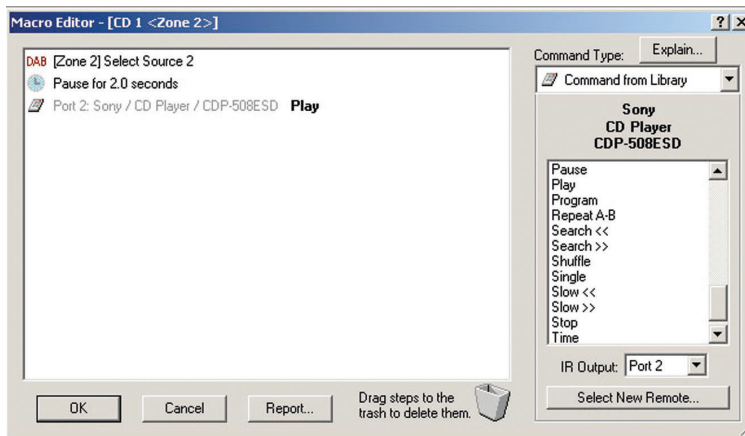
Figure 29. Macro Editor

Macro Editor

Macro Editor is the WINDOW in which the individual KEYPAD BUTTONS are PROGRAMMED. A button program, or macro, can be a default DAB1 Command, a single IR command or a complex macro built up of DAB1 Commands, IR Commands, timing delays, RS-232 Commands and conditional instructions.

To open Macro Editor:

1. With the EDIT MACRO Button [icon] selected in the lower left corner of PROGRAM MANAGER, left click any DAB1 keypad button appearing on the screen. Macro Editor will open.

To close Macro Editor, do any of the following:

1. Left click OK to SAVE a macro.

2. Left click CANCEL to CLOSE Macro Editor WITHOUT SAVING or making changes.

3. Left click the X in the upper right corner of Macro Editor to CLOSE Macro Editor WITHOUT SAVING or making changes.

Command From Library – Select and left click from the COMMAND TYPE pull-down. The Remotes in the IR Library are available for adding IR commands to Macros.

IR Output – Left click the pull-down and select a PORT # to

direct IR commands to one of the four PROGRAMMED IR Ports on the back of the DAB1 Controller for IR Routing, when using multiple same-brand, same-model components.

Select New Remote – Left click to open a Library Window with all remotes available in the selected IR Library. Multiple Libraries can be created if desired. Double click or drag-and-drop IR commands into the Macro List Window.
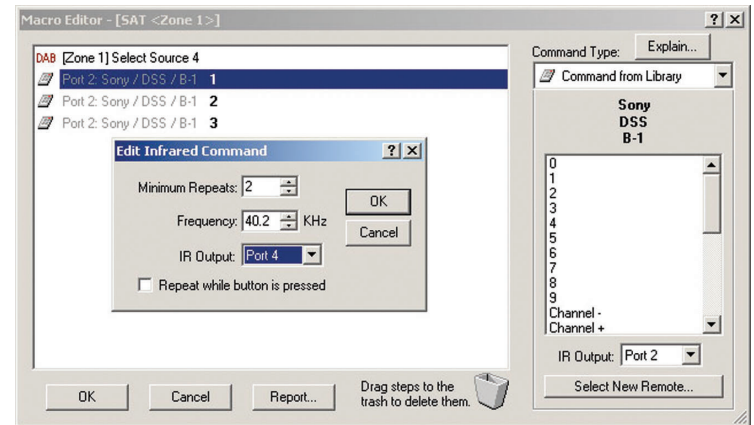
Figure 30. Macro Editor IR Command & Edit Windows

Figure 30 shows the Macro Editor with the Edit Infrared Command Window open. The image shows that the Satellite Receiver is Source 4. The IR commands were set for PORT 2. Double or right click the IR command to open 'Edit Infrared…' The Port # can be changed to the proper IR output. Click OK to save changes.

DAB Command – Select and left click from the COMMAND TYPE pull-down to add DAB COMMANDS to macros. DAB Commands control DAB functions such as: Power ON/OFF, Source Select, Volume, Mute, Tuner Preset Select etc…The DAB has certain default programming, but these commands can also be added to macros for whole-house control.

Function – Select and left click to define which DAB command is to be configured. i.e. Volume, Source Select etc.

Zone – Select and left click to assign the DAB command to a particular zone, ZONE 1-6, a group of zones (PARTY) or ALL ZONES.

Value – Select and left click to set the DAB command mode i.e. UP, DOWN, FLAT, ON, OFF etc. Double click or drag-and-
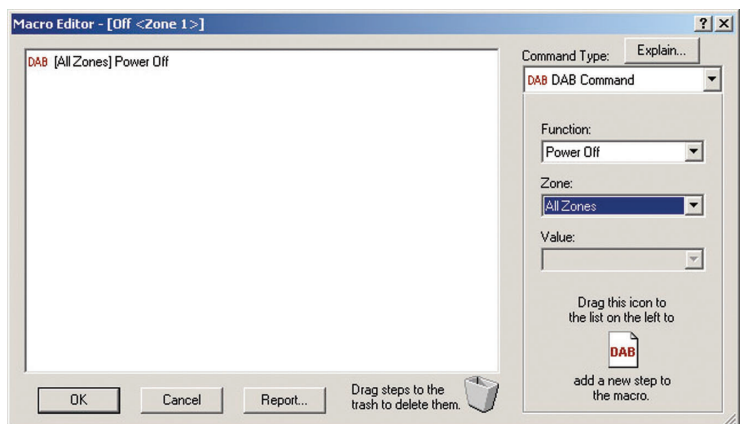
Figure 31. Macro Editor – DAB Command

drop the DAB icon to add a DAB Command to the Macro List.

Figure 31 shows the DAB Command for All Zones OFF as used in the Double Press level on the OFF button in Zone 1.

DAB Status Test – Select and left click from the COMMAND TYPE pull down to add 'conditional' (if/then) commands to macros.

Condition – Select and left click to set conditional trigger.
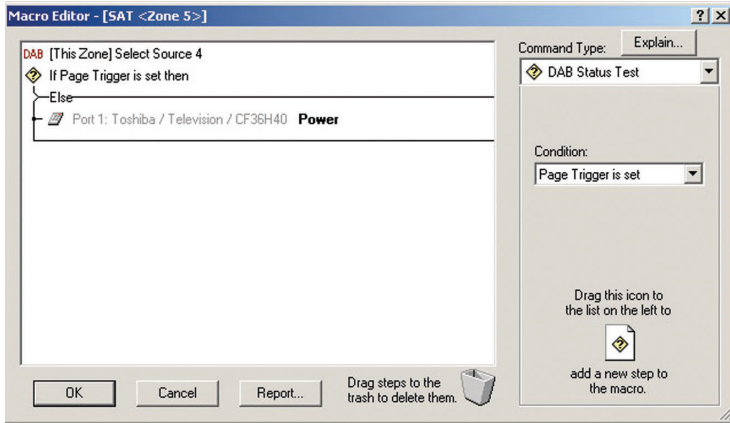
Figure 32. Macro Editor Status Test Command TV ON macro

Figures 32 and 33 are examples of how to use Status Commands, the Control Input on the DAB1 Controller back panel, the Page Trigger in General Setup and a Sonance ASAP2 or VT1 to manage the power on a TV.

In Figure 32, when SAT is selected in Zone 5, the DAB1 will
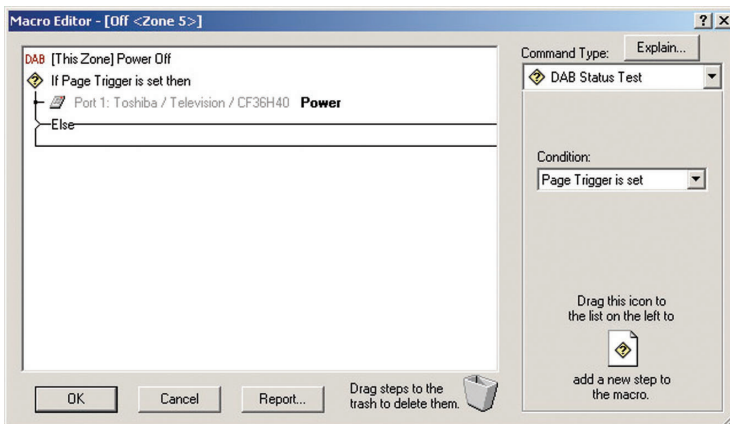
Figure 33. Macro Editor Status Test Command TV OFF macro

'look' at the Control Input to check Status. If there is no voltage present, the power command for the TV will be sent to the TV through IR Port 1. The TV will turn ON. When the TV turns ON, the ASAP2 (current sense) or VT1 (video sense) will output a 12VDC control signal that will indicate a TV ON condition. If the SAT button is pressed again, the DAB1 knows the TV is ON, does not send the power command, and the TV stays in sync with the system.

In Figure 32, when the OFF button is pressed in Zone 5, the DAB1 will again 'look' at the Control Input to check Status. The DAB1 'sees' the 12V control signal, knows the TV is ON and sends the TV power command to the TV through IR Port 1. The TV turns OFF.

To manage the power on a TV when discrete codes are not available:

1. DISABLE (no check) the 'Allow Page Trigger…' in GENERAL SETUP. This will change the Control Input's function from being a Paging Trigger to a Voltage Trigger for Status commands.

2. Program the following macro to a SOURCE button:

a) IF PAGE TRIGGER IS SET THEN... This will cause the DAB to 'look' at the Control Input.

b) Port 1/Brand/TV/model/power (Be sure to enter this command BELOW the ELSE command 'bracket'.

3. Program the following macro to the OFF button:

a) IF PAGE TRIGGER IS SET THEN... This will cause the DAB to 'look' at the Control Input.

b) Port 1/Brand/TV/model/power (Be sure to enter this command ABOVE the ELSE command 'bracket'.

4. Connect the power cord for the TV to the sensed outlet on the ASAP (current sense) or connect the composite video out of the TV to the Video In on the VT1 (video sense). When either of these conditions is sensed, the ASAP2 or VT1 will send a 12V control voltage to the DAB1. The DAB1 will 'manage' the TV power as described above. *NOTE: The explanation of the connections for the ASAP2 and VT1 have been simplified. Please refer to the specific Installation Manuals for these products for additional information prior to using them in an installation.*

RS-232 Command - Select and left click from the COMMAND TYPE pull down to add RS-232 commands to macros.

Baud Rate – Select and left click the appropriate value from the pull down to set the RS-232 baud rate for the device being communicated with.

Format – Select and left click the appropriate value from the pull down for the Serial line of the device being communicated with.

8N1 = eight data bits, no parity, one stop bit.

7O1 = seven data bits, odd parity, one stop bit

7M1 = 7 data bits, mark parity, one stop bit

7S1 = 7 data bits, space parity, one stop bit

String - Type the ASCII text string or HEX code for the RS-232 command to be used in a macro. (HEX MODE Button DESELECTED = ASCII text, HEX MODE Button SELECTED = HEX code).
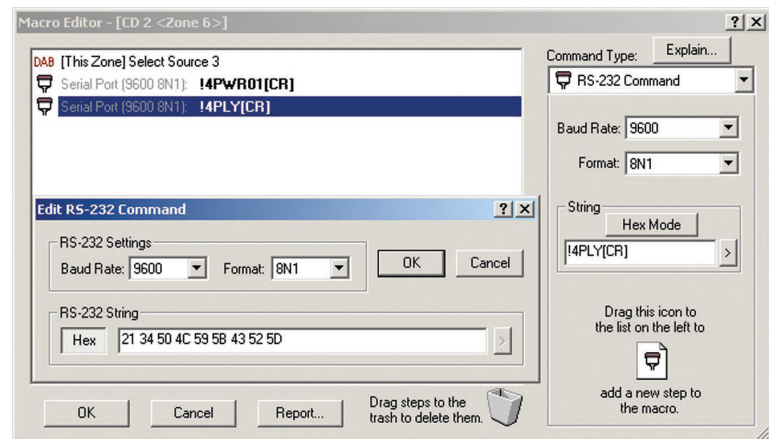
Figure 34. Macro Editor RS-232 Command & Edit Windows

Figure 34 shows Macro Editor with the EDIT RS-232 Window open. This allows changes to be made to the individual RS-232 commands, say if the baud rate was improperly set. The Edit RS-232 window has the HEX button selected showing the HEX equivalent for the selected command, should it be needed for programming another part of the system. Double or right click the RS-232 command, to open the Edit RS-232 Command Window. *NOTE: If a macro has an RS-232 command it will bypass the auto-update feature and make the DAB a one directional control.*

Time Delay - Select and left click from the COMMAND TYPE pull down to add TIME DELAYS between steps in macros.

Delay Time – Use the UP/DOWN arrows or type a value to set a time delay from 0.1 second to 240 seconds.

Some components can 'see' and 'process' commands faster than others. Adding delays can sometimes help keep codes from 'running together'. Double or right click a Time Delay step, to open the Edit Time Delay Window. Another good use of Time Delays is when using CD or DVD Changers. These types of devices can take a few seconds to rotate into position and load a selected disc. Incorporating a Time Delay after a disc select command can help keep system performance in sync when being controlled with macros.

Double click or drag and drop the DAB icon to add a time delay to the Macro List.
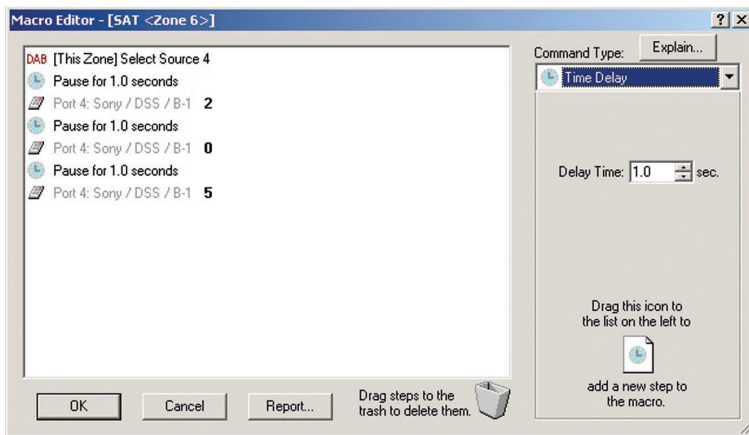
Figure 35. Macro Editor Time Delay

Figure 35 shows a one second delay between IR commands in a macro for a Satellite channel.

Repeat Steps - Select and left click from the COMMAND TYPE pull down to add REPEAT STEPS before a command that needs to be repeated in a macro.

Until Button is Released – Select to cause a command to repeat continuously while a button is being pressed. Double left click or drag the command to be repeated into the Macro List. Drag the command into the Repeat 'bracket'. Release mouse button. The command will attach to the Repeat bracket. *NOTE: A "Repeat Until Button Is Released" command in the Press level will defeat the Press and Hold level for that button.*

Repeat X# Times - Use the UP/DOWN arrows or type a

value to repeat a command from 1 to 60 times. (eg. Some "power off" commands for projectors need to repeat twice). Double left click or drag the command to be repeated into the Macro List. Drag the command into the Repeat 'bracket'. Release mouse button. The command will attach to the Repeat bracket. Double click or drag and drop the DAB icon to add a repeat command to the Macro List.
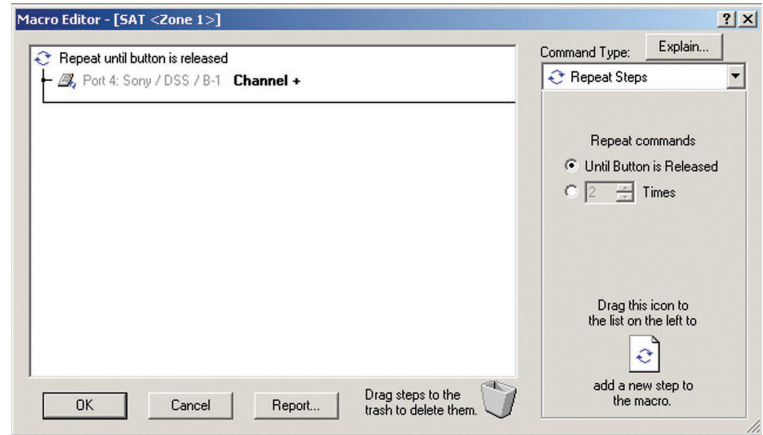
Figure 36. Macro Editor Repeat Command

Figure 36 shows the Repeat Steps Command being used to repeat a Channel UP command for a Satellite Receiver, as long as the button is held down, to scan channels on a Satellite Receiver. Double or right click the Repeat command, to open the Edit Repeat Command Window.
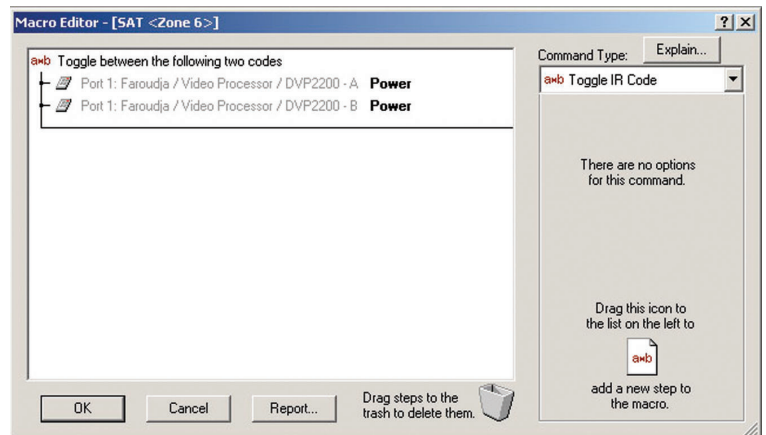
Figure 37. Macro Editor IR Toggle Command

Toggle IR Code – Select and left click from the COMMAND TYPE pull down to program a TOGGLE IR CODE. Toggle IR Codes alternate their function every other time they are issued/received. Double left click or drag the Toggle command into the Macro List. Drag the command into the Toggle 'bracket'. Release mouse button. The command will attach to the Toggle bracket.
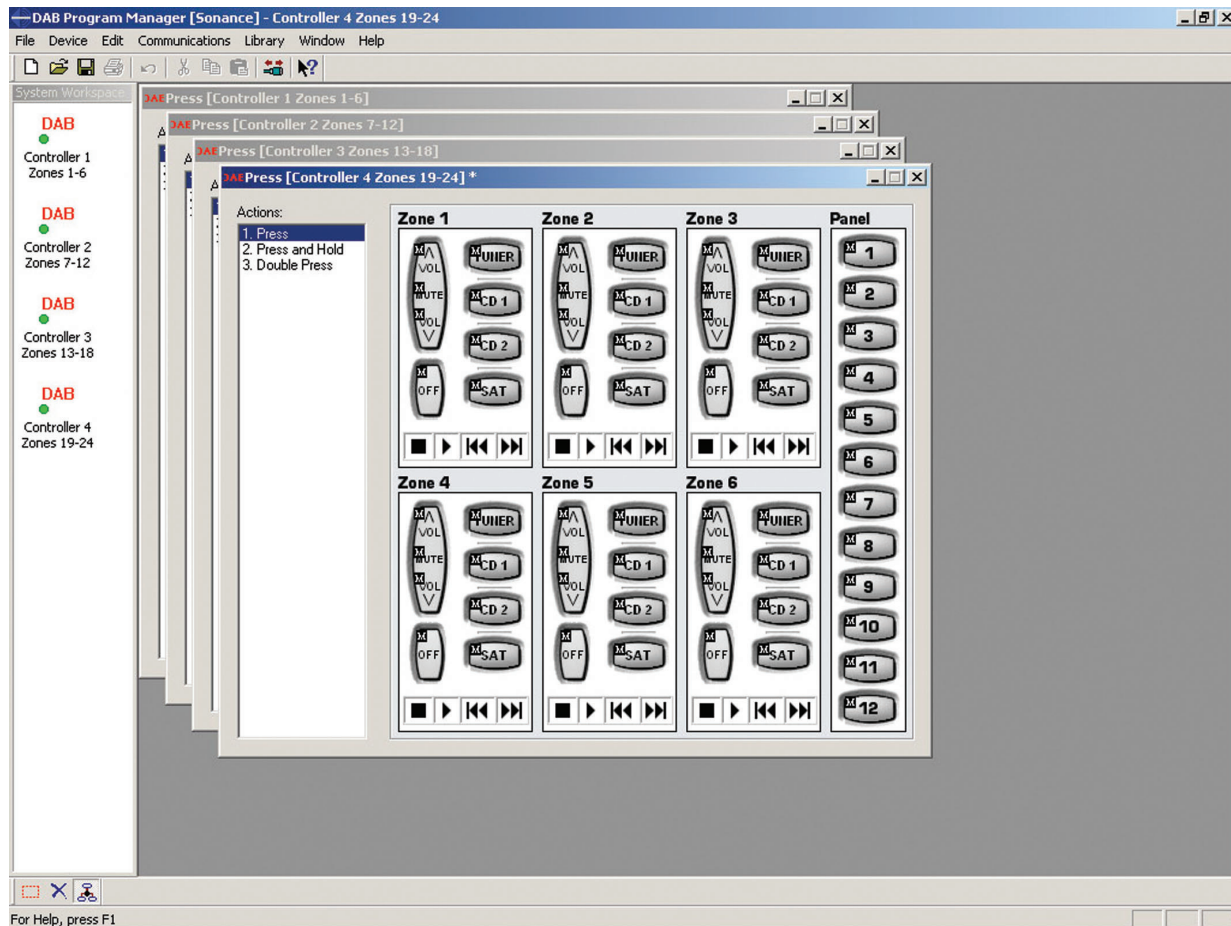
Figure 38. Program Manager. 4 Device, 24 Zone System

PROGRAM MANAGER PART 2 - PROGRAMMING

Programming the DAB1 Controller

With DAB Program Manager properly installed:

1. Launch DAB Program Manager from the Start Menu.

2. Select and left click FILE in the Menu bar.

3. Select and left click NEW from the pull down window.

4. The CREATE NEW SYSTEM FILE Window will open. Enter a name for the SYSTEM to be programmed in the File Name text block.

5. Click SAVE. An untitled DEVICE (DAB1) Window will open and appear in the SYSTEM WORKSPACE Window.

6. Select and left click DEVICE in the Menu bar.

7. Select and left click RENAME from the pull down menu.

8. The RENAME DEVICE WINDOW will open. Enter the same file name used in step 4 if Programming a SYSTEM with one DEVICE.

9. If Programming an EXPANDED SYSTEM with multiple Devices, Entering a Device name such as: Controller 1 Zones 1-6 and Controller 2 Zones 7-12 will help identify which Device is being programmed at a given time. See Figure 38.

10. Click OK.

Job Info

1. From the FILE pull down, select and left click JOB INFO. The JOB INFO Window will open.

a) Select the DEALER INFORMATION Tab. Fill in all information relating to the specific job.

b) Select the CLIENT INFORMATION Tab. Fill in all information relating to the specific job.

c) Click OK.

General Setup

1. From the DEVICE pull down, select and left click GENERAL SETUP. The General Setup Window will open.

a) Select Zone 1-6 or <none> in the FRONT PANEL IR RECEIVER CONTROLS pull-down to allow IR control of a specific Zone from the DAB1 Front Panel IR Receiver, if desired.

b) Select the box for ALLOW PAGE TRIGGER if whole-house Paging or trigger sensing is to be used.

c) Click OK.

Tuner Setup

1. From the DEVICE pull down, select and left click TUNER SETUP. The TUNER SETUP Window will open.

a) Select NORTH AMERICA or Other depending on location.

b) In the PRESET 1 Box, enter the CALL LETTERS (i.e. KLWS) or music GENRE (i.e. JAZZ, ROCK, CLASS) in NAME text block if the preference is to show the call letters or genre in the System Status/Tuner Window. If the preference is to show the station TUNING FREQUENCY, do not enter anything into this block. Maximum letters per block: 8 depending on the letters.

c) In the PRESET 1 Box, enter a station tuning frequency in the FREQUENCY text box to set the station to be selected with the corresponding preset. A station tuning frequency must be entered to set DAB1 Tuner Presets.

d) In the PRESET 1 Box, left click kHz AM to make the preset an AM station.

e) In the PRESET 1 Box, left click MHz FM to make the preset an FM station.

f) Repeat steps b-e as required for Tuner Presets 2-12.

g) Click OK.

NOTE: Tuner Setup Parameters are non-volatile. If the DAB1 Controller loses power, Tuner Setup configuration will remain intact.

See Figure 18, on page 19, for an illustration of the TUNER SETUP screen.

Zone Setup

1. From the DEVICE pull down, select and left click ZONE SETUP. The ZONE SETUP Window will open.

a) Select Tab for ZONE 1.

b) Select or deselect the ALLOW PAGING box to ENABLE or DISABLE Paging. Factory Default: Enabled.

c) Select or deselect the ALLOW PARTY MODE box to ENABLE or DISABLE Party Mode. Factory Default: Enabled.

d) Set the DEFAULT VOLUME. Move slider to set the 'Turn on' Volume in a given Zone. The Zone will always turn on to the same volume regardless of the level set when the Zone was turned OFF. Zones in Party Mode will turn on to their respective Default Volume settings. Factory Default: 20.

e) Set the MAXIMUM VOLUME. Move slider to set the Maximum Volume in a given Zone. Set to a level that eliminates distortion and prevents overdriving speakers to avoid damage. Factory Default: 60.

f) Set the PAGE VOLUME. Move slider to set the Paging Volume in a given Zone. Set to a level that allows voice from Paging device to come through to Zone speakers clearly, without distortion, feedback or overdriving speakers. Factory Default: 20. *NOTE: Be sure to check Paging Volume with the actual Paging device after system is installed, to correct settings for too low/high a level, feedback, etc.*

g) Set BASS Level. Move slider to set Bass level in a given Zone. Factory Default: 0 (flat).

h) Set TREBLE Level. Move slider to set Treble level in a given Zone. Factory Default: 0 (flat).

i) Set BALANCE. Move slider to set Balance in a given Zone. Factory Default: Center.

j) Repeat steps b-i as required for zones 2-6.

k) Click OK.

NOTE: Zone Setup Parameters are non-volatile. If the DAB1 Controller loses power, Zone Setup configuration will remain intact.

Source Setup

1. From the DEVICE pull down, select and left click SOURCE SETUP. The Source Setup Window will open.

a) Set SOURCE NAME. Source 1/Tuner tab defaults to Tuner. If using the Internal Tuner, adjust Volume Offset (see Volume Offset below).

b) If using an external source for Source 1, and for sources 2-4, left click the pull down arrow and select the name of the component to be used. Adjust Volume Offset (see Volume Offset below). The source icon will appear on all Keypads for the Device selected in the main PROGRAMMING WINDOW. *NOTE 1: Be sure INT TUNER/EXT IN switch on DAB Controller Back Panel, is in proper position for Source 1.*

c) Repeat Step b for Sources 2-4. *NOTE 2: If using more than one DAB1 in a system, it is necessary to individually program the Source Icons for each Device (DAB1) unless all Zones will be identical, in which case, use DUPLICATE from the DEVICE pull down to create multiple, identical Devices for an expanded system.*

d) Set VOLUME OFFSET. Move slider to adjust the input level of the source components. This control allows 'balancing' the output levels of different sources so they all play at (or near) the same volume.

e) Load program material (CD, DVD, cassette or video tape) into all components or set the Tuner to a strong station. Try to use similar program material, (all rock, all jazz, all classical etc) with similar characteristics so adjustments reflect the OUTPUT LEVEL of the component not differences in PROGRAM MATERIAL.

f) Play all sources.

g) Starting with Source 1/Tuner, switch through the sources to get a feel for the relative audio level of the sources.

h) Make adjustments in DAB1 Program Manager as needed to compensate for different levels.

i) Connect the USB PROGRAMMING CABLE to the PC and DAB1 USB Programming ports.

j) In the COMMUNICATIONS Menu pull down, select SEND TO DEVICE.

k) Left click the SEND button to transfer the program information.

l) Disconnect the USB Programming Cable.

m) Manually switch through the Sources to test changes.

n) Repeat steps g-l as needed until all Sources play at approximately the same level.

o) Click OK.

NOTE: Source Setup Parameters are non-volatile. If the DAB1 Controller loses power, Source Setup configuration will remain intact.

Programming the DAB1 Keypads and IR Commands

Note: For the purpose of this manual, programming will involve a 4 source, 6 zone system using the Internal Tuner, two identical, same brand, same model CD Changers and a Satellite Receiver for sources.

There are three levels of Keypad programming that correspond to three types of Keypad button presses. They are: PRESS, PRESS AND HOLD and DOUBLE PRESS. Programming Instructions for each button will be broken down into these three levels, with suggestions for function programming. Every job is different. These instructions are purely suggestions for system design and are intended as a guide to assist in understanding the DAB Program Manager and how to get the most out of a DAB1 whole-house system.

NOTE 1: There is no specific POWER ON button or command. A SOURCE SELECT button will select a source input and turn an inactive Zone ON when pressed.

NOTE 2: Any time a macro is programmed to a button in the PRESS Level, it is necessary to include the DAB COMMAND for that button's default function. e.g. when programming a macro for a CD source select button that will select Source 2 in Zone 1, delay 2 seconds and include a PLAY command to be routed to Programmed IR Port 2, the macro would be:

DAB [Zone 1] Select Source 2

Pause for 2 Seconds

Port 2/Brand/CD Player/Model #/Play

See Figure 29, page 27.

NOTE 3: It is necessary to include the PORT # and use the PROGRAMMED IR jacks when using multiple same-brand same-model components such as two identical CD Changers.

Note 4: The DAB1 Controller is default programmed for the following functions:

• PRESS on any Source Button: Turns the local Zone ON/OFF with that Source.

• PRESS AND HOLD on any Source Button: Activates Party Mode with that Source for all Zones.

• DOUBLE PRESS on the Source 1 Button: Next Tuner preset (if the internal Tuner is assigned as Source 1 — see Page 7, #29).

The following instructions offer options for programming PRESS AND HOLD and DOUBLE PRESS functions. For more information on the Party Mode Default on PRESS AND HOLD, see the section: PARTY MODE.

NOTE 5: A REPEAT UNTIL BUTTON IS RELEASED Command in PRESS will defeat Press and Hold for that button.

In the SYSTEM WORKSPACE window, left click the DEVICE to be opened. The DEVICE KEYPAD Window will open. The Keypad Source Buttons should display their source icons (TUNER, CD, DVD, SAT etc). If they do not, return to section: SOURCE SETUP, steps 1b-c.

Volume UP/Down

In a typical system these buttons will not require programming. They are programmed at the factory for Zone Volume.

Mute

Press

Default

No Programming required. A single press will MUTE/UNMUTE the local Zone.

Press and Hold

Default

No programming required. A Press and Hold will MUTE/UNMUTE all Zones in PARTY Mode.

Note: Since the MUTE command is a toggle command, an already muted zone will be unmuted during a PARTY MUTE command. To avoid this, program "PARTY MUTE ON" in "Press and Hold" and program "PARTY MUTE OFF" in double press locations.

Double Press

Default

None.

Source Programming

Source 1 (Tuner)

Source 1 is shipped from the factory to select the internal TUNER. If using the Internal Tuner:

Press

Default:

No Programming required. The Tuner button will turn a Zone ON if inactive, and select Tuner at the last station selected.

Option:

This macro will have the Tuner button turn a Zone ON if inactive, select Tuner and switch to a default favorite station.

NOTE: With this option, if the TUNER is currently selected in an ACTIVE ZONE, the station will CHANGE to the FAVORITE when any Zone with this macro selects Tuner.

1. Select PRESS in the ACTIONS Window.

2. Left click the TUNER button in Zone 1. If the MACRO EDITOR Window opens with the DAB Command: [THIS ZONE] SELECT SOURCE 1, proceed to STEP 3. To program: SELECT SOURCE 1 IN ZONE 1:

a) Select DAB COMMAND from the COMMAND TYPE pull down.

b) Select SOURCE from the FUNCTION pull down.

c) Select ZONE 1 from the ZONE pull down.

d) Select SOURCE 1 from the VALUE pull down.

e) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST Window to add the step to the macro list.

3. To select a default favorite station:

a) Select DAB COMMAND from the COMMAND TYPE pull down.

b) Select TUNER CONTROL from the FUNCTION pull down.

c) Select PRESET # from the VALUE pull down for the default favorite station.

d) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST Window to add the step to the macro list.

e) Click OK. The Macro Editor will close and an 'M' will appear on the Tuner button in Zone 1 in the Press level, to indicate that there is a macro programmed on that button, in that Zone, on that level.

NOTE: A REPEAT UNTIL BUTTON IS RELEASED Command in PRESS will defeat PRESS AND HOLD for that button.

Press and Hold Default:

No programming required. A Press and Hold of the TUNER button will switch all Zones in PARTY MODE to TUNER.

Option:

To scan Tuner frequencies from the Keypad using the Press and Hold function:

1. Select PRESS AND HOLD in the ACTIONS Window.

2. Left click the TUNER button in Zone 1. The MACRO EDITOR Window will open. To scan frequencies:

a) Right click the [PARTY MODE] SELECT SOURCE 1 Command. Select and left click DELETE STEP.

b) Select DAB COMMAND from the COMMAND TYPE pull down.

c) Select TUNER CONTROL from the FUNCTION pull down.

d) Select FREQUENCY STEP UP from the VALUE pull down.

e) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST Window to add the step to the macro list.

f) Click OK. The Macro Editor will close and an 'M' will appear on the Tuner button in Zone 1 in the Press and Hold level, to indicate that there is a macro programmed on that button, in that zone, on that level.

Double Press

Default:

Next Tuner Preset. No Programming required. A Double Press of the Tuner button will select the next programmed Tuner Preset.

Source 2 (CD 1)

Pressing the CD 1 Button will turn a Zone ON if inactive and select Source 2 (CD 1). By taking advantage of the DAB1's programming flexibility, a macro can be assigned to the PRESS Level to select CD 1 and automatically PLAY the CD if the CD player has stopped. A DELAY of 2 seconds will be placed between the SELECT SOURCE and PLAY commands to allow the CD player to turn ON and stabilize if CD 1 is selected on initial power up. This scheme can also be used to control a DVD player, VCR, etc.

To select and control one of two identical CD Changers:

Press

Default:

No Programming required. The CD 1 button will turn a zone ON if inactive, and play the CD 1 program if CD 1 is playing.

Option:

To automatically PLAY CD 1 when selecting Source 2:

1. Select PRESS in the ACTIONS Window.

2. Left click the CD1 button in Zone 1 If the MACRO EDITOR Window opens with the DAB Command: [THIS ZONE] SELECT SOURCE 2, proceed to STEP 3. To program: SELECT SOURCE 2 IN ZONE

a) Select DAB COMMAND from the COMMAND TYPE pull down.

b) Select SOURCE from the FUNCTION pull down.

c) Select ZONE 1 from the ZONE pull down.

d) Select SOURCE 2 from the VALUE pull down.

e) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST window to add the step to the macro list.

3. To program a DELAY:

a) Select TIME DELAY from the COMMAND TYPE pull down.

b) Set the DELAY TIME to 2 seconds using the arrow buttons or entering a '2' in the Delay Time Text Block.

c) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST window to add the step to the macro list.

4. To add the CD PLAY Command:

a) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

b) Select PORT 2 with the IR OUTPUT pull down. (This will direct the IR commands for CD 1 to the emitter plugged into PROGRAMMED IR PORT 2 and provide selective control of CD1).

c) Press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the REMOTE for the COMPONENT to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

d) Scroll through the list of commands and double click PLAY.

The Play command will be added to the macro list.

f) Click OK. The Macro Editor will close and an 'M' will appear on the CD 1 button in Zone 1 in the Press level, to indicate that there is a macro programmed on that button, in that zone, on that level.

NOTE: A REPEAT UNTIL BUTTON IS RELEASED Command in PRESS will defeat PRESS AND HOLD for that button.

Press and Hold

The commands programmed to the PRESS AND HOLD and DOUBLE PRESS levels will vary by job, component used, (single CD Player, CD Changer etc) and client preference. When using a single player it may be preferable to place track skip forward on Press and Hold with Pause or Stop on Double Press. With a CD Changer a usable design might be track skip forward on Press and Hold with Next Disc on Double Press. For the purpose of this manual, two CD Changers with track skip and next disc will be programmed. To help the client, it is recommended that a DAB1 Remote or full featured programmable IR remote be included with the system for each Zone.

Default:

No programming required. A Press and Hold of the CD 1 button will switch all Zones in PARTY MODE to CD 1.

Option:

To program the CD Track Skip Forward Command:

1. Select PRESS AND HOLD in the ACTIONS Window.

2. Left click the CD 1 button in Zone 1. The MACRO EDITOR Window will open. To program the track skip command:

a) Right click the [PARTY MODE] SELECT SOURCE 2 Command. Select and left click DELETE STEP.

b) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

c) Select PORT 2 with the IR OUTPUT pull down. (This will direct the IR commands for CD 1 to the emitter plugged into PROGRAMMED IR PORT 2 and provide selective control of CD 1).

d) If the desired remote is open in Macro Editor, proceed to step 'e' below. If necessary, press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

e) Scroll through the list of commands and double click SKIP>|. The Skip Fwd command will be added to the macro list.

f) Click OK. The Macro Editor will close and an 'M' will appear on the CD1 button in Zone 1 in the Press and Hold level, to

indicate that there is a macro programmed on that button, in that zone, on that level.

Double Press

Default:

None.

Option:

To program the CD Next Disc Command:

1. Select DOUBLE PRESS in the ACTIONS Window.

2. Left click the CD1 button in Zone 1. The Macro Editor Window will open.

a) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

b) Select PORT 2 with the IR OUTPUT pull down. (This will direct the IR commands for CD1 to the emitter plugged into PROGRAMMED IR PORT 2 and provide selective control of CD1).

c) If the desired remote is open in Macro Editor, proceed to step 'd' below. If necessary, press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

d) Scroll through the list of commands and double click DISC SKIP +. The Disc Skip command will be added to the macro list.

e) Click OK. The Macro Editor will close and an 'M' will appear on the CD1 button in Zone 1 in the Double Press level, to indicate that there is a macro programmed on that button, in that zone, on that level.

Source 3 (CD 2)

Programming for CD 2 is identical to CD 1 except for CD 2, the IR Commands must be routed to PROGRAMMED IR PORT 3. (This will direct the IR commands for CD 2 to the emitter plugged into Programmed IR Port 3 and provide selective control of CD2).

Source 4 (Satellite)

The Programming for Satellite is similar to the programming for Tuner. With a Satellite Tuner, DAB1 Commands can be used to select Tuner presets and scan frequencies. The IR commands will be routed to Programmed IR PORT 4. This scheme can also be used for controlling a cable box.

Press

Default:

No programming required. The SAT button will turn a Zone ON if inactive, and select Satellite at the last station selected.

Option:

This macro will have the SAT button turn a zone ON if inactive, select Satellite and switch to a default favorite station.

NOTE: With this option, if the SATELLITE is currently selected in an ACTIVE ZONE, the station will CHANGE to the FAVORITE when any Zone with this macro selects Satellite.

1. Select PRESS in the ACTIONS Window.

2. Left click the SAT button in Zone 1. If the MACRO EDITOR Window opens with the DAB Command: [THIS ZONE] SELECT SOURCE 4, proceed to STEP 3. To program: SELECT SOURCE 4 IN ZONE

   a) Select DAB COMMAND from the COMMAND TYPE pull down.

   b) Select SOURCE from the FUNCTION pull down.

   c) Select ZONE 1 from the ZONE pull down.

   d) Select SOURCE 4 from the VALUE pull down.

   e) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST window to add the step to the macro list.

2. To program a default favorite station:

   a) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

   b) Select PORT 4 with the IR OUTPUT pull down

   c) Press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

   d) Scroll through the list of commands and double click the numbers for the station to be programmed as 'favorite' e.g.: '2' '0' '5' for the Contemporary Rock Station. Each numeric command will be individually added to the macro list.

   e) In some cases it may be necessary to add an enter or select command to select a station.

NOTE: It may be necessary to add a time delay between the numeric commands if the Satellite Receiver does not consistently tune a station.

   f) Click OK. The Macro Editor will close and an 'M' will appear on the Tuner button in Zone 1 in the Press level, to indicate that there is a macro programmed on that button, in that zone, on that level.

NOTE: A REPEAT UNTIL BUTTON IS RELEASED Command in PRESS will defeat PRESS AND HOLD for that button.

Press and Hold

Default:

No programming required. A Press and Hold of the Satellite button will switch all Zones in PARTY MODE to Satellite.

Option:

To scan frequencies on the Satellite Receiver using the Press and Hold function:

1. Select PRESS AND HOLD in the ACTIONS Window.

2. Left click the SAT button in Zone 1. The MACRO EDITOR Window will open. To scan frequencies:

   a) Right click the [PARTY MODE] SELECT SOURCE 4 Command. Select and left click DELETE STEP.

   b) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

   c) Select Port 4 from the IR OUTPUT pull down.

   d) If the desired remote is open in Macro Editor, proceed to step 'e' below. If necessary, press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

   e) Scroll through the list of commands and double click the CHANNEL+ command. The Channel+ command will be added to the macro list. *NOTE: It may be necessary to 'Edit' the Channel + command. Normally a Channel + command will move one station at a time when pressed and released and scroll when held. To enable scrolling, double click on the Channel + command in the Macro List. The EDIT INFRARED COMMAND Window will open. Check the REPEAT WHILE BUTTON IS PRESSED Box to enable scrolling.*

   f) Click OK. The Macro Editor will close and an 'M' will appear on the Tuner button in Zone 1 in the Press and Hold level, to indicate that there is a macro programmed on that button, in that zone, on that level.

Double Press

Default:
None.

Off

The three levels of control (Press, Press and Hold and Double Press) provide flexibility in control option. For the purpose of this manual, programming the OFF button will be for a system where:

- Each Zone can be turned OFF individually.

- Three Zones in a common area will be in 'PARTY MODE' and can be turned OFF as a group.

- All Zones can be turned OFF.

Press

To turn an individual zone OFF:

Default:

No Programming required. The DAB1 Keypads are programmed at the factory to default to individual ZONE OFF.

Press and Hold

To turn OFF the Zones in PARTY MODE:

Default:

No Programming required. The DAB1 Keypads are programmed at the factory to default to turn OFF all Zones in PARTY MODE.

Double Press

Default:

None.

Option

To turn OFF ALL ZONES:

1. Select DOUBLE PRESS in the ACTIONS Window.

2. Left click the OFF button in Zone 1. The MACRO EDITOR Window will open.

a) Select DAB COMMAND from the COMMAND TYPE pull down.

b) Select POWER OFF from the FUNCTION pull down.

g) Select ALL ZONES from the ZONE pull down.

h) DOUBLE CLICK or DRAG the DAB ICON to the MACRO LIST window to add the step to the macro list.

i) Click OK. The Macro Editor will close and an 'M' will appear on the Tuner button in Zone 1 in the Press and Hold level, to indicate that there is a macro programmed on that button, in that zone, on that level.

Stop, Play, Skip Rev, Skip Fwd

These buttons are found on the handheld remote included with the DAB1 but are not found on the DAB1 optional Keypads. They are VIRTUAL BUTTONS that respond to IR commands generated by the DAB1 REMOTE CONTROL. These four 'buttons' can be programmed in all three levels, Press, Press and Hold and Double Press. When these virtual buttons are pro-

grammed, the DAB1 Controller will 'see' an IR Command and output the macro that has been associated to that IR command. These macros can include any of the command types programmable in the Macro Editor. These buttons will typically be used to control the source components.

NOTE 1: In order to control a SOURCE COMPONENT with the DAB1 REMOTE, the IR command for the source function MUST be associated to the DAB1 Remote IR command in Program Manager. The DAB1 Remote cannot be directly programmed to output the IR command for the source function.

NOTE 2: If any keypad button has a macro programmed to it, pressing the corresponding button on the DAB1 remote will trigger the macro.

NOTE 3: These four virtual transport buttons are universal to the system and cannot be programmed to have specific functions by source and by Zone. Check www.sonance.com for updates regarding this feature.

To program the virtual Stop, Play, Skip Rev, Skip Fwd buttons for CD 1 in Zone 1:

Press

To program STOP:

1. Select PRESS in the ACTIONS Window.

2. Select the STOP Button in Zone 1. Macro Editor will open.

a) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

b) Select PORT 2 with the IR OUTPUT pull down. (This will direct the IR commands for CD 1 to the emitter plugged into PROGRAMMED IR PORT 2 and provide selective control of CD 1).

c) If the desired remote is open in Macro Editor, proceed to step 'd' below. If necessary, press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

d) Scroll through the list of commands and double click STOP. The STOP command will be added to the macro list.

e) Click OK. The Macro Editor will close and an 'M' will appear on the STOP button in Zone 1 in the Press level, to indicate that there is a macro programmed on that button, in that zone, on that level.

f) Repeat steps 2a-e for the Play, Track Skip Rev and Track Skip Fwd Buttons.

Press and Hold

To program DISC SKIP to the |< and >| buttons:

1. Select PRESS AND HOLD in the ACTIONS Window.

2. Select the Skip Rev Button (I<<) in Zone 1.

a) Select COMMAND FROM LIBRARY from the COMMAND TYPE pull down.

b) Select PORT 2 with the IR OUTPUT pull down. (This will direct the IR commands for CD1 to the emitter plugged into PROGRAMMED IR PORT 2 and provide selective control of CD1).

c) If the desired remote is open in Macro Editor, proceed to step 'd' below. If necessary, press the SELECT NEW REMOTE Button. The SELECT REMOTE FROM LIBRARY Window will open. Scroll through the list and select the remote for the component to be controlled. The SELECT REMOTE FROM LIBRARY Window will close and the remote selected will be featured in the Macro Editor. Manufacturers typically use the same IR codes for all of the models they produce. Try a different remote of the same brand and component type if the specific remote for the component to be controlled is not in the list. If a brand or component or specific command is not available, see section: LEARNING IR CODES.

d) Scroll through the list of commands and double click Disc Skip -. The Disc Skip Rev. command will be added to the macro list.

e) Click OK. The Macro Editor will close and an 'M' will appear on the STOP button in Zone 1 in the Press level, to indicate that there is a macro programmed on that button, in that zone, on that level.

f) Repeat steps 2a-e for Disc Skip Fwd Button on the >>I button.

Double Press

None.

Numeric Buttons 1-12

The Panel buttons are typically used to store the 12 TUNER PRESET COMMANDS in the PRESS Level.

These Presets can be selected with:

• Keypad commands

• DAB1 Front Panel button presses

• IR commands from the DAB1 Remote or other IR remote control

• RS-232 commands

These buttons can also be programmed with macros for other control functions. Different commands can be programmed in the Press, Press and Hold and Double Press levels, but the Press and Hold and Double Press commands can only be triggered from the DAB1 Front Panel buttons.

Press

Default

To select an Internal Tuner Preset:

No programming needed. The DAB1 is programmed at the factory to store and select Tuner presets as configured in TUNER SETUP.

NOTE 1: If a station frequency has not been programmed in TUNER SETUP, the DAB1 will not select a preset. i.e. if preset 4 is set to 94.7 FM, the DAB1 will select that preset with a button press on the Front Panel or when the DAB1 'sees' the IR command for Memory Preset 4 from the DAB1 Remote. If Preset 5 has no station frequency associated, the DAB1 will not select that preset. For more information see: Tuner Setup.

NOTE 2: A STATION FREQUENCY and a DAB1 COMMAND must be programmed in Tuner Setup and Macro Editor respectively, to be able to select Presets.

Press and Hold

Default

No programming required. Default command is a DAB1 Front Panel command. A Press and Hold of a Tuner Preset button on the DAB1 Front Panel will store the currently-selected Tuner frequency and band. Any previously-stored frequency will be replaced. Changes made manually will appear in Program Manager in Tuner Setup if a 'Receive From Device' is performed.

RS-232 CONTROL

The RS-232 Port, on the back panel of the DAB1 Controller allows the DAB1 to send or receive ASCII text commands. In some applications it may be desirable to control a particular source component using RS-232 rather than IR. In another application, the DAB1 might be used as a sub-system in a whole-house automation system. With RS-232 communication, turning on the alarm system could shut down the DAB1 system when leaving the house. The press of a button with an advanced lighting system could set a particular lighting scene and send a command to the DAB1 to turn that Zone on, select a particular source and start the music.

Programming macros with RS-232 commands is done with the Macro Editor using a similar process to programming IR and DAB1 commands. The only difference is, the IR Library and DAB1 commands are already embedded in the Program Manager. To control another component or system (CD changer, lighting system, etc) the RS-232 command strings need to be entered into the Macro Editor. Refer to the product manual of the component/system to be controlled to get the specific text commands for that component/system. Manufacturers will typically post this information on their websites as another resource.

When controlling the DAB1 from another component/system the programming will be to that control system. The DAB1 is programmed at the factory to respond to specific ASCII text commands. The protocol for these commands is detailed below. Refer to the control device programming instructions for details on how to program RS-232 commands when controlling an external device

RS-232 Protocol limitations:

- The RS-232 protocol can typically only be used to control one component or system.

- To ensure proper operation, the RS-232 connection between the DAB1 Controller and the other RS-232 device must be 50 feet or shorter.

- The DAB1 can either be controlled by another device via RS-232, OR it can act as an RS-232 controller (issuing RS-232 control commands), but it CANNOT do both.

Placing even a single RS-232 command into a macro will put the DAB1 into the RS-232 controller mode, and it will no longer respond to any commands from an RS-232 control device. All RS-232 commands must be flushed from all DAB1 macros before the DAB1 will again respond to RS-232 commands from an RS-232 control device.

NOTE: In normal use, the DAB1 will automatically send RS-232 System Status Updates (Zone ON/OFF, Source etc) when controlled by a Keypad or IR Remote. If the DAB1 is being controlled by a PC or control device such as a touch panel controller with a graphic display, these updates will be output by the DAB1 and can be monitored without any additional programming. However, if the DAB1 is sending RS-232 commands to control a particular component or system, the DAB1 will not output the Status Updates.

DAB1 Serial Protocol

Baud Rate	Parity	Data Bits	Stop Bits	Flow Control
19200	None	8	1	None

Control Commands

Each DAB1 command begins with a : (colon) character, and ends with a carriage return. The following commands are implemented:

After each command is received, the DAB will respond with +OK if the command is recognized and executed, or +ERR if the command is invalid. Note that even valid commands (such as volume controls, etc) will return +ERR if the DAB is not able to process them (e.g. it is turned off).

Command	Syntax	Parameters	State	Comments
Zone Power	:Zxy<cr>	x=Zone 1-6 y=State	1=On, 0=Off	Discrete Zone Setting
All Zones Off	:Zy<cr>	y=State	1=On, 0=Off	Global Setting Only
Source Select	:Sxy<cr>	x=Zone 1-6 y=Source 1-4	Adjustable	Discrete Zone Setting
Tuner Memory	:Ryy<cr>	yy=Memory 1-12	Memory Preset #	Global Setting Only
Band Select	:Ny<cr>	y=State	1=FM, 0=AM	Global Setting Only
Volume	:Vxyy<cr>	x=Zone 1-6 yy=Vol 0 to 60	Adjustable	Discrete Zone Setting
Volume Step	:Vx++<cr> or :Vx—<cr>	++ = increase — = decrease	Adjustable	Discrete Zone Setting
Page Volume	:Gxyy<cr>	x=Zone 1-6 yy=Vol 0 to 60	Adjustable	Discrete Zone Setting
Page Volume Step	:Gx++<cr> or :Gx—<cr>	++ = increase — = decrease	Adjustable	Discrete Zone Setting
Mute	:Mxy<cr>	x=Zone 1-6 y=State	1=Mute On 0=Mute Off	Discrete Zone Setting
Balance	:Bxyyy<cr>	x=Zone 1-6 yyy=Bal -10 through +10	Adjustable Center=0	Discrete Zone Setting
Balance Bump Step	:Bx++<cr> or :Bx—<cr>	++ = increase — = decrease	Adjustable	Discrete Zone Setting
Bass	:Lxyy<cr>	x=Zone 1-6 yyy=Bass -8 through +8	Adjustable Flat=0	Discrete Zone Setting
Bass Bump Step	:Lx—<cr> or :Lx++<cr>	++ = increase — = decrease	Adjustable	Discrete Zone Setting
Treble	:Hxyy<cr>	x=Zone 1-6 yy=Treble -8 through +8	Adjustable Flat=0	Discrete Zone Setting
Treble Bump Step	:Hx—<cr> or :Hx++<cr>	++ = increase — = decrease	Adjustable	Discrete Zone Setting

STATUS Code Table

Status Query

The status queries follow the same format as the commands, except that the setting field is replaced with a ? (question mark) character. The response consists of a + (plus sign) followed by the parameter being checked, the zone (if applicable), and the current setting.

The DAB will respond with **+ERR** if the status query is invalid.

Command	Syntax	Parameters	Response	Response Parameters
Zone Power	:Zx?<cr>	x=Zone 1-6	+Zxy	x=Zone 1-6 y=1 if On, 0 if Off
Any Zones On	:Z?<cr>	none	+Zy	y=1 if any zone On, 0 if all zones Off
Source	:Sx?<cr>	x=Zone 1-6	+Sxy	x=Zone 1-6 y=Current Source (1 – 4)
Tuner Memory	:R?<cr>	none	+Ry	y=Current Preset (1 – 12), or 0 if not on a preset
Tuner Band	:N?<cr>	none	+Ny	y= 1 for FM, 0 for AM
Volume	:Vx?<cr>	x=Zone 1-6	+Vxy	x=Zone 1-6 y=Current Volume (0 to 60)
Page Volume	:Gx?<cr>	x=Zone 1-6	+Gxy	x=Zone 1-6 y=Current Page Volume (0 to 60)
Mute	:Mx?<cr>	x=Zone 1-6	+Mxy	x=Zone 1-6 y=1 if Mute On or 0 if Mute
Off Balance	:Bx?<cr>	x=Zone 1-6	+Bxy	x=Zone 1-6 y=Current Balance (-10 to +10)
Bass	:Lx?<cr>	x=Zone 1-6	+Lxy	x=Zone 1-6 y=Current Bass (-8 to +8)
Treble	:Hx?<cr>	x=Zone 1-6	+Hxy	x=Zone 1-6 y=Current Treble (-8 to +8)

STATUS Query Table

Asynchronous status notifications

The DAB1 will also send unsolicited response messages in the format described above whenever the relevant parameter changes.

EXAMPLES OF RS-232 COMMANDS FOR CONTROLLING THE DAB1:

Example 1

Homeowner wants to walk into a room, press a button to turn on a lighting scene, turn on the music system in that zone, select the DAB1 Internal Tuner and switch to a particular Tuner Preset. The lighting or whole house system would be programmed to send commands to the DAB1.

NOTE: The DAB1 could also be programmed to control the lighting system if desired.

To select a Tuner Preset (Preset 3), select the internal Tuner (Source 1) and particular Zone (Zone 2):

:R3**<cr>**

:S21**<cr>**

Note: R3 or RO3 can be used. RS-232 commands can be xxx lower or upper case (case insensitive)

Example 2

Homeowner wants to turn the alarm system off, automatically turn on certain zones, select the DAB1 internal Tuner and switch to a particular Tuner Preset. The alarm system would be programmed to send commands to the DAB1 when deactivated.

To turn on certain zones (Zones 2, 3, 5) select the internal Tuner (Source 1) and select a Tuner Preset

(Preset 4):

:R4<cr> - RO4 or R4 can be used

:S21**<cr>**

:S31**<cr>**

:S51**<cr>**

The logic of this order of commands would select the preset first (which only need be done once), select the source and finally turn the Zones on. This way, the source is set before the Zones are turned on. Of course all Zones will turn on to their respective Default Volumes as set in Zone Setup.

Example 3

Homeowner wants to be sure the whole house audio system is off when the alarm is set. Alarm system is programmed to send a command to the DAB.

To turn the entire system OFF:

:Z0**<cr>**

EXAMPLES OF RS-232 COMMANDS SENT FROM THE DAB1 TO CONTROL EXTERNAL DEVICES:

Example 1

Homeowner wants to turn on a TV or projector when selecting a video source. By using RS-232 commands, a specific ON command can be issued so that if the TV/Projector is already on, it will ignore the command and stay in sync with the system. An additional command could be issued to switch to the appropriate input. An IR command could then be issued to switch a satellite channel or play a DVD player. The macro would be programmed in the Macro Editor and commands would be sent to the DAB1, the TV/projector and the Satellite Receiver.

Program the following macro to select a source (Source 4) in Zone 6, turn on a TV or Projector and switch to input 1 (via RS-232) and then select a 'favorite' satellite channel '205' and 'enter' (via IR):

DAB [Zone 6] Source 4

Serial Port {9600 8N1} ON

Serial Port {9600 8N1} INPUT 1

Port 4/DSS/2

Port 4/DSS/0

Port 4/DSS/5

Port 4/DSS/enter

A bit of trial and error may be necessary to get proper results. Some delays may need to be added between commands to get proper performance.

RS-422

This port may not be currently active. Check www.sonance.com for updates regarding this feature.

Copy and Paste Buttons

Buttons

Once a Zone has been programmed and tested, the next step is to program the other Zones. The Copy and Paste Buttons feature saves time from having to program every command and Time Delay on each button, if all Zones are to be programmed the same. To Copy and Paste Buttons:

1. With either the Select Button or Edit Macro Button selected, RIGHT CLICK on the Button to be COPIED.

2. Select and left click COPY BUTTON from the pop-up menu.

3. Position the cursor over the button to be programmed.

4. Right click, select and left click PASTE MACRO. If copying to more than one button, (all CD 1 buttons) it may be easier to paste to all CD 1 buttons before copy/pasting the next button (CD 2).

5. Repeat steps 1-4 for all buttons in each of the Press, Press and Hold and Double Press levels.

6. Download Device Program. See: Downloading a Device below.

7. Test all functions. Make changes as needed.

NOTE: Check www.sonance.com for updates regarding this feature.

Programming an Expanded System

For convenience and flexibility, SYSTEMS with multiple DAB1 Controllers (DEVICES) are OPENED, CLOSED and SAVED as systems with the ability to individually program each device. For the purpose of this manual, a system with 4 Devices (up to 24 zones) will be used. If all Zones are going to have identical functions, the easiest way to program the system is to create a NEW SYSTEM, program the PRIMARY DEVICE, and then DUPLICATE that Device. All programming (source icons, macros, zone setup) will be copied to the additional devices. Some incidental programming will be necessary like resetting the Volume Offsets to '0' and programming the individual Zone Setups.

To keep track of the individual Devices, they can be individually named. Something like: Controller 1 Zones 1-6, Controller 2 Zones 7-12, is good in that those names will appear in the title bar of the DEVICE Windows and in the SYSTEM WORKSPACE Window. This will help keep track of the individual Devices and their associated Zones. Use whatever names make it easy to keep track of multiple devices.

To DUPLICATE a DEVICE:

1. Select and left click the DEVICE to be duplicated from the SYSTEM WORKSPACE Window. The KEYPAD Window will open in the Programming Window.

2. If multiple Devices are open, select the DEVICE to be DUPLICATED in the PROGRAMMING Window.

3. Select and left click DEVICE in the Program Manager Menu bar.

4. Select and left click DUPLICATE from the Device pulldown. The DUPLICATE DEVICE Window will open.

5. Type a meaningful name in the text block.

6. Click OK. The DUPLICATE DEVICE Window will close. The Duplicated Device will appear in the SYSTEM WORKSPACE Window and will open on screen.

7. Program the Duplicated Device as needed.

NOTE: For systems with multiple devices open in the System Window, select and left click the CASCADE command in WINDOW, in the Program Manager Menu bar, to arrange Keypad Windows.

Downloading to a Device

Once all the programming has been done in Program Manager and Macro Editor, or when looking to test a macro or a command, the DEVICE PROGRAM will need to be saved and downloaded to the DAB1 Controller. Whether programming a SINGLE Device or an Expanded System with MULTIPLE Devices, DAB Program Manager keeps track and provides notice of whether a Device or Devices need UPDATING…i.e. have changes been made in the Device Program that have not been downloaded to the Device.
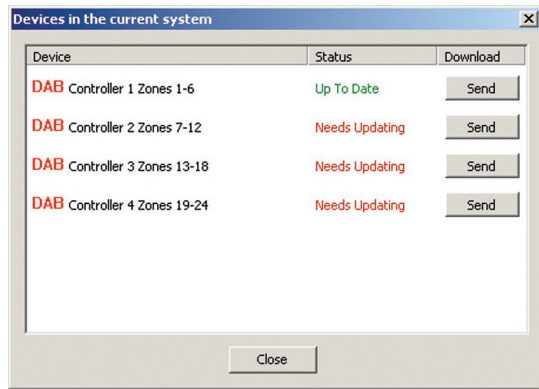
Figure 39. Devices Window

To Download a Device Program:

1. The Device (DAB1 Controller) to be programmed must have AC POWER and must be connected to the PC via the USB PROGRAMMING PORT on the Device Front Panel using the supplied cable or any USB "B" type cable. When properly connected, all DAB functions will be suspended and the message: USB TRANSFER IN PROGRESS will appear in the SYSTEM STATUS Window.

Note: Before you can use the DAB Program Manager Software to program, the DAB1 via the USB port, you must initialize the DAB1 to your computer. To do this, provide power to the DAB1 then plug in the USB cable. Your computer should recognize the DAB1 and automatically install the required drivers to the appropriate folders. If your computer does not recognize the DAB1, you can also go to the Device Manager (under Control Panel>System>Hardware>Device Manager) and induce the computer to scan for new hardware attached by selecting Scan under the Action option at the top of the window.

2. Select and left click FILE in the PROGRAM MANAGER Menu bar.

3. Select and left click OPEN from the pull down. The OPEN Window will appear.

4. Select and left click the System name from the OPEN Window. The OPEN Window will close and the selected System's Device(s) will appear in the SYSTEM WORKSPACE Window. (The DEVICE KEYPAD Windows do not need to be opened to download.)

5. Select and left click COMMUNICATIONS in the Program Manager Menu bar.

6. Select and left click SEND TO DEVICE from the pull down. The DEVICES IN THE CURRENT SYSTEM Window will open with a list of Devices and their Updating Status Figure 39. If a Device shows: NEEDS UPDATING, this indicates changes have been made in Program Manager that have not been downloaded to that Device. If a Device shows: UP TO DATE, this indicates no programming changes have been made since the last time that Device Program was downloaded.

7. Left click the SEND button for the Device currently connected to the PC. The PROGRAM MANAGER TRANSFERRING DATA Window will briefly appear. (If the COMMUNICATIONS Window opens, be sure the DAB1 has AC power and check the USB connection.) The Device Status will change to UP TO DATE after the Device program has been successfully downloaded.

8. Repeat step 7 for all other Devices in the System that need updating.

9. Left click the CLOSE button on the DEVICES IN THE CURRENT SYSTEM Window. The window will close.

10. Test all functions from the DAB1 Keypads and DAB1 Remote to be sure the System has been properly configured. Make changes as needed or proceed with installation.

NOTE: If the Communications Window opens after step 7, unplug the USB cable and reconnect. The DAB1 Program Manager will automatically send the Device Program.

Uploading from a Device

On occasion, it may be necessary to program or make changes (Firmware Upgrade) to a DAB1 Controller that is already installed and the original Device Program is not available. This procedure can also be useful to check system programming to determine whether a command has been omitted from a macro if the system is not performing properly.

To Upload a Device Program:

1. The Device (DAB1 Controller) to be programmed must have AC POWER and must be connected to the PC via the USB PROGRAMMING PORT on the Device Front Panel using the supplied cable. When properly connected, all DAB1 functions will be suspended and the message: USB TRANSFER IN PROGRESS will appear in the SYSTEM STATUS Window.

2. Select and left click FILE in the PROGRAM MANAGER Menu bar.

3. Select and left click NEW from the pull down. The CREATE NEW SYSTEM FILE Window will open.

4. Type 'UNTITLED' in the FILE NAME text block.

5. Left click the SAVE button. An untitled Device will open.

6. In the COMMUNICATIONS pull-down menu, select and left click RECEIVE FROM DEVICE.

7. The DAB Program Manager will upload the Device Program from the DAB1 Controller, place the Device in the System Workspace and the KEYPAD Window will open in the Programming Window.

8. In the PROGRAMMING Window, select the Device titled UNTITLED.

9. In the DEVICE pull-down menu, select and left click DELETE.

10. A DAB Program Manager Window will open with a warning that 'Untitled System' will be deleted. Are you sure? Click YES. Untitled System will be deleted, leaving the program from the DAB on screen.

11. To ARCHIVE (Save) a DEVICE PROGRAM, in the FILE pull-down menu, select and left click CLOSE SYSTEM. Device will close. (All Device Programming will be saved.)

a) To rename a Device Program, select and left click RENAME in the DEVICE pull-down menu. Type an appropriate file name and click OK.

b) In the 'File' pull-down menu, select and left click 'Close System.' Device will close.

Saving a System

Single Device (DAB1 Controller)

DAB Program Manager automatically places an ASTERISK (*) at the end of the FILE NAME in the DEVICE KEYPAD WINDOW TITLE BAR when any programming changes that have been made to a Device have NOT been SAVED.

Since most of the usual process associated with saving a file, like choosing a location and creating a file name, was done at the time the Device was created, saving is a simple process.

To SAVE a Device:

1. With the DEVICE to be saved selected in the PROGRAMMING WINDOW, Select and left click DEVICE in the Program Manager Menu bar.

2. Select and left click SAVE from the pull down. The selected device will be saved. Any other Devices currently open will retain program and changes but will not be saved.

3. To close the Device, either left click the 'X' in the upper right corner of the Device Window or:

a) Select and left click CLOSE from the Device pull down. The selected Device will close. Any other Devices currently open will stay open.

Expanded System (Multiple Devices)

When 'saving a system' with multiple Devices, either repeat steps 1-4 in 'Single Device' above for each Device in the system or:

1. Select and left click FILE in the PROGRAM MANAGER Menu bar.

2. Select and left click SAVE ALL DEVICES. All open Devices will be saved.

3. To close the system, either individually left click the 'X' in the upper right corner of each Device Window or:

a) Select and left click CLOSE SYSTEM in the FILE pull down. All open Devices will close.

TROUBLESHOOTING

PROBLEM	SOLUTION
Keypads	
Keypad does not backlight.	Be sure backlight jumper is in place.
Keypad backlight is too bright.	Confirm proper Keypad Backlight Jumper Position (See page 9, #47)
IR receiver in Keypad does not work.	a) Be sure IR receiver jumper is in the ON position (See page 9, #49). b) Eliminate interference from light sources, (sunlight, halogen, fluorescent, etc) that may be interfering with or locking up the IR Receiver. c) Move Keypad away from source of interference. d) Turn the IR receiver on the keypad OFF and use a separate IR receiver in a different location.
Power	
System will not power up.	a) DAB1 Controller must be plugged into an un-switched AC outlet. b) Power cord must be plugged into DAB1 Controller.
Keypads 4-6 will not power up.	Switch Zone 4-6 Keypad Power switch on the DAB1 Controller rear panel to Internal.
Source components plugged into switched outlets do not turn on when system is turned on.	Power switches on components must be in on or standby position.
Tuner	
No sound from Tuner.	a) Move Internal Tuner switch on rear panel to Internal Tuner. b) Check to make sure the antennas are connected.
The unit is locked up. No button functions work.	a) Check to see if the lock symbol is on display. If on, press and hold mute button for approximately 10 seconds to unlock front panel buttons. b) To prevent accidental power or line surges, be sure all components are turned OFF and unplugged from AC and disconnect speakers before proceeding: c) Unplug the unit's AC power cord. Wait about 15 seconds and reconnect to appropriate AC outlet.
The tuner does not select appropriate stations for U.S./European frequencies.	a) On the front panel hold down the Select button for approximately 10 seconds or until the system menu appears. Then select U.S./European mode by pushing the up/down arrow once. Then push the Power button. b) Check configuration in Program Manager Tuner Setup. Note: European settings are denoted as Other in the DAB1 Program Manager and on the Tuner.

PROBLEM	SOLUTION
Audio	
No Audio from Source	a) Is Source ON? b) Is Source line audio out connected to appropriate source input on DAB1 Controller? c) Is source playing? No sound from Source 1: Move Internal Tuner switch on rear panel to external input. Switch to Auto Off by holding down AM/FM button.
No Audio in Zone	a) Are speakers connected? b) Is Zone ON? c) Is Zone volume turned up? d) Check Zone max volume/turn on volume in Program Manager. e) Make sure the zone is set up in the software.
No Paging signal in zones.	a) Be sure Paging audio source is connected to the Page IN jack on the Primary DAB1 Controller. b) Be sure Page IN/OUT are connected in an expanded system (multiple DAB1 Controllers). c) Be sure 12V Page Trigger input is connected. d) Be sure Page Trigger device is outputting 6-12V AC/DC.
No audio in Zones driven by secondary DAB1 Controllers in an expanded system.	a) Be sure the Source Outputs on the Primary DAB Controller (the one that has the source components connected to it) are connected to the Source Inputs on the Secondary Controller(s). b) Check Volume Offset for Sources on Secondary Controller(s) in Program Manager. (Should be '0'.)
External Amplifiers	
Keypad or Remote volume up/down commands change volume in all sub-zones when using external multi-channel amplifier for sub-zone expansion.	Be sure the specific Zone variable/fixed output switch is in the fixed (in) position. Also be sure the Zone volume is set at its appropriate maximum volume in Program Manager to achieve proper audio level in sub-zones.
Keypad or Remote volume up/down commands do not adjust volume when using a external amplifier.	Be sure the specific zone variable/fixed output switch is in the variable (out) position.
Infrared Control	
Remote controls from other products are not being controlled through local IR.	Move the Front IR Pass switch on the rear panel to the ON position.
IR commands are not being routed to specific source components.	a) Emitters must be plugged into Programmed IR jacks. b) IR commands must be programmed to output from a specific port in Macro Editor. c) Programmed IR cannot be used in expanded systems (multiple DAB1 Controllers.)

PROBLEM	SOLUTION
Infrared Control (continued)	
No IR output at Primary DAB1 Controller from Keypad button presses connected to Secondary Controller(s) in an expanded system (multiple DAB1 Controllers).	IR Link(s) must be connected in parallel.
DAB1 remote does not control the DAB1.	a) In Program Manager, select Device>General Setup, be sure the Zone to be controlled from the front panel of the DAB Controller is selected. b) Remove the batteries, wait about 10 seconds and reinstall the batteries. Use only alkaline batteries. Also try to keep the remote off static surfaces like carpet or rugs.
DAB1 Remote does not control source components.	a) Check to make sure the IR emitters are attached over the IR eyes on the fronts of the source components and properly plugged in to the DAB1. b) Be sure IR commands for source components have been associated to DAB1 Remote commands (Stop, Play, Pause, Skip Rev, Skip Fwd) by source, by zone in Program Manager.
Source does not respond to IR command output by DAB1 Controller	a) Check Program Manager to be sure the proper command has been programmed to a button. b) Test IR Command from IR Library to confirm it is the right code. Try another remote from same brand/component if necessary. c) Teach IR command to IR Library if no codes from library work. d) Relearn the command.
RS-232 Control	
No RS232 communication with an external device.	a) Is external device ON? b) Is external device connected with a DB9 Null cable? (DAB1 RS-232 Port is configured as 'Null'. Check configuration of external device port.) c) Is external device properly configured to send/receive? d) Are ASCII text commands in Program Manager correct? e) Are 'baud rate' and 'format' properly configured?
Program Manager	
The USB connection gives a Windows error: Device not detected.	a) Unplug the USB cable to the DAB. Also try re-installing the USB driver. b) Confirm Com Port selection/connection. c) Hit Send on the Program Manager and then connect USB cable to the port.

OPERATING INSTRUCTIONS

These instructions reflect operating the DAB1 System using options found in "Programming the DAB1 Keypads and IR Commands" on page 32. Any changes to the default should be detailed for a client in a separate document.

With AC power to the DAB1 Controller and Source Components, all system connections made and Device programming complete:

When any Zone is turned ON, the DAB1 will turn ON and will turn ON any Sources plugged into the switched outlets. When the last Zone is turned OFF, the DAB1 will turn OFF and any Sources plugged into the switched outlets will turn OFF. The DAB1 Remote buttons will have the same functions as the Front Panel Keypad buttons, with the addition of the numeric and transport (PLAY, STOP etc) functions.

Default

Source 1 (Tuner)

Press – Turn Zone ON, select Tuner at last selected Preset.

Press and Hold – Turn ON all Zones in PARTY Mode, select Tuner at last selected Preset.

Double Press – Select next programmed Tuner Preset.

Sources 2-4

Press – Turn Zone ON, Select Source 2.

Press and Hold – Turn ON and select Source 2 for all Zones in PARTY Mode.

Double Press - No function.

Volume

Adjust as needed.

Mute

Press – MUTE/UN-MUTE Zone

Press and Hold – MUTE/UN-MUTE all Zones in PARTY Mode.

Double Press – No function.

Off

Press – Turn Zone OFF.

Press and Hold – Turn OFF all Zones in Party Mode

Double Press – No Function.

These instructions reflect operating the DAB1 System using options the Example System in PROGRAM MANAGER PART 2.

Source 1 (Tuner)

Press – Turn Zone ON, select Tuner Preset 1.

Press and Hold – Tuner Step UP.

Double Press – Select next programmed Tuner Preset.

Source 2 (CD 1)

Press – Turn Zone ON, SELECT and PLAY CD1.

Press and Hold – CD 1 Next Track.

Double Press - CD 1 Next Disc.

Source 3 (CD 2)

Press – Turn Zone ON, SELECT and PLAY CD 2.

Press and Hold – CD 2 Next Track.

Double Press - CD 2 Next Disc.

Source 4 (SAT)

Press – Turn Zone ON, SELECT Satellite 'favorite' channel 205.

Press and Hold – Satellite channel +.

Volume

Adjust as needed.

Mute

Press – MUTE/UN-MUTE Zone

Press and Hold – MUTE/UN-MUTE all Zones in PARTY Mode.

Double Press – No function.

Off

Press – Turn Zone OFF.

Press and Hold – Turn OFF all Zones in Party Mode

Double Press – ALL OFF.

SPECIFICATIONS

Amplifier

Output Power:	30 Watts per channel RMS @ 8Ω
Frequency Response:	20 Hz to 20 kHz +/- 1dB
Total Harmonic Distortion:	.05%THD@1kHz, 0.1%THD 20Hz-20 kHz
Input Sensitivity:	200mV
Input Impedance:	30kΩ
Signal to Noise Ratio:	-95dB
Source Input Voltage (max):	2.0 VAC RMS
Buffered Loop Output Impedance:	100Ω
Fixed Line Output Impedance:	100Ω
Fixed Line Output Level:	1:1dB unity gain
Variable Line Output Impedance:	100Ω
Variable Line Output Level:	+19dB - 0dB, all volume settings at maximum

Tuner

FM Section

Frequency Range:	87.50 MHz - 108.00 MHz
THD @ 1 KHz:	Mono 0.15%, Stereo 0.20%
Usable Sensitivity:	- 35dB
Selectivity:	28dB
Signal to Noise:	-72dB
Frequency Response:	30-15kHz +/- 0.5dB
Stereo Separation:	35dB @1kHz
Output Level:	500mV
FM Antenna:	F-Type 75Ω

AM Section

U.S. Frequency Range:	520 kHz - 1710 kHz
U.S. Step Size:	10 kHz
European Frequency Range:	522 kHz - 1611 kHz
European Step Size:	9 kHz
THD:	1.2% @ 1 KHz
Sensitivity:	25dB
Selectivity:	24dB
Signal to Noise:	45dB
Frequency Response:	40-3kHz +/- 4dB
AM Antenna:	Loop Antenna

IR

Learning Bandwidth	36 kHz – 110 kHz (455 kHz from library only.)
IR Receiver - Controller Front Panel	26 kHz – 110 kHz
IR Receiver - Keypad	20 kHz – 120 kHz
Range	< 30 feet

General

Input Sources:	4 Source, configurable either as internal tuner and 3 external sources or 4 external sources
Audio Outputs:	6 speaker level outputs, 6 line level outputs (fixed or variable)
Expansion:	Up to 24 zones (3 additional Distributed Audio System systems) via RCA, IR Link, and Sync connections
RS232:	19.2K 8NI Auto Update Receive & Confirm / Send, Variable Baud Rate
Sync:	3.5 mm Mono Cable
Power Requirements:	115/230 VAC, 50/60 H (switchable by qualified service personnel only)
Power Consumption:	960 @120V / 1000 @230V watts at maximum power (12 channels driven.)
AC Output:	2 switched outlets on rear (110V input setup only)
Keypad Connections:	6 RJ45 ports
IR Outputs:	6-Zone Specific, 4-Common, 4-Programmable
Dimensions (W x H x D):	16- 3/4" x 6" x 15" (425mm x 152mm x 381mm)
Weight:	33 lbs

Specifications and features subject to change without notice.

SERVICE

Please contact the Sonance Technical Service Department with any questions regarding the operation or installation of the DAB1 System Monday – Friday from 7:00am – 5:00pm PST at:

800.582.0772 or 949.492.7777

Technical Service can also be contacted via email at tech@sonance.com.

Should the DAB1 require repair or service, contact an authorized Sonance Dealer for help, preferably the dealer that did the installation, or use the following procedure:

1. Prior to calling, note the product model number, serial number, purchase date and original Dealer's name and address.

2. Contact Technical Service at the number above and describe the problem. If required a Return Merchandise Authorization (RMA) will be issued.

   IMPORTANT: Do not return the unit back to Sonance without first obtaining an RMA number.

3. If directed to return the unit to Sonance for repair, repack pack the unit in its original shipping cartons (inner & outer). Replacement packaging can be obtained from Sonance for a small charge. **Note: it's best if an additional 'overcarton' is used to conceal contents before shipping to minimize a chance of theft in shipment.**

4. Contact United Parcel Service, Federal Express, or RPS to arrange prepaid (not collect) shipping. Do not use the United States Postal Service.

   IMPORTANT: Freight collect shipments will be refused.

5. Write the Return Merchandise Authorization number on the outside of the shipping carton.

6. For warranty work, please include a copy of the original bill of sale inside the package.

   Ship the packaged unit to:

   Returns Department

   Sonance

   212 Avenida Fabricante

   San Clemente, CA 92672-7531

WARRANTY

If, within five (5) years from the date shown on the bill of sale, the unit fails due to a defect in workmanship or materials, Sonance will, at its option and at no charge to the purchaser, repair or replace the components of such unit which prove to be defective.

For this warranty to be effective, the bill of sale must show that the unit was purchased from an authorized Sonance retailer. This warranty shall apply exclusively to the original purchaser and shall not apply to units purchased for industrial or commercial use.

Furthermore, this warranty shall not apply if:

1. Damage to the unit was caused by accident, abuse, or misuse;

2. The unit was modified or repaired by unauthorized personnel; or

3. The unit was not used as outlined in the operating instructions

EXCLUSIONS AND LIMITATIONS

The warranty set forth above is in lieu of all other warranties, express or implied, of merchantability, fitness for a particular purpose, or otherwise. The warranty is limited to Sonance products registered herein and specifically excludes any damage to any associated equipment, which may result for any reason from use with this product.

Sonance shall, in no event, be liable for incidental or consequential damages arising from any breach of this warranty or otherwise. This warranty gives you specific legal rights and you may have other rights, which vary from state to state.