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SAFETY INSTRUCTIONS

READ INSTRUCTIONS - All the safety and operating instructions should be read before the appliances are operated.

RETAIN INSTRUCTIONS - The operating instructions should be retained for future reference.

HEED WARNING - All warnings on the appliances and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS - All operating and use instructions should be followed.

WATER AND MOISTURE - The appliances 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, etc.

LOCATION - The appliances should be installed in a stable location.

WALL OR CEILING MOUNT - The appliances should not be mounted to a wall or ceiling.

VENTILATION - The appliances should be situated so that their location or position does not interfere with their proper ventilation. For example, the appliances should not be situated on a bed, sofa, rug or similar surface that may block the ventilation openings.

HEAT - The appliances should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances that produce heat.

POWER SOURCES - The appliances should be connected to a power supply only of the type described in the operating instructions or as marked on the appliances.

GROUNDING - Make sure that the units in the system are always connected to a standard three-prong grounded outlet (the circular pin is ground). When operating this unit at a higher voltage with a different power cord configuration, consult your dealer for the proper power cord/outlet combination to use before operating this unit.

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 points where they exit from the appliances.

CLEANING - The appliances should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the face plates.

POWER LINES - An outdoor antenna should be located away from power lines.

PERIODS OF DISUSE - The power cord of the appliances should be unplugged from the outlet when the units are not in use for a long period of time.

OBJECT AND LIQUID ENTRY - Care should be taken so that objects do not fall and liquids are not spilled into the enclosures through openings.

DAMAGE REQUIRING SERVICE - The appliances should be serviced by an authorized service center or qualified service personnel when:
- The power supply cords or plugs have been damaged; or
- Objects have fallen, or liquid has been spilled into the appliances; or
- The appliances have been exposed to rain; or
- The appliances do not appear to operate normally or exhibit a marked change in performance; or
- The appliances have been dropped; or the enclosures have been damaged.

SERVICING - The user should not attempt to service the appliances beyond that described in the operating instructions. For all other servicing, contact the factory.

WARNING:
TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THE APPLIANCES IN THIS SYSTEM TO RAIN OR MOISTURE. REPLACE FUSE ONLY AS MARKED.

CAUTION:
TO PREVENT ELECTRIC SHOCK, DO NOT PLUG THE UNITS IN THIS SYSTEM INTO ANY OUTLET OR EXTENSION CORD WITHOUT THE STANDARD THREE-PRONG CONFIGURATION, WHERE THE CIRCULAR HOLE IS USED FOR THE GROUND PLUG.

IMPORTANT:
The lightning flash with the arrowhead, within an equilateral triangle, is intended to alert the user of the presence of un-insulated “dangerous voltage” within the products’ enclosures that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

F.C.C. Notice:
Design Certified to Comply with F.C.C. Rules, Part 15, Subpart C
1. This device does not cause harmful interference.
2. This device can accept interference received including interference that may cause undesired operation.

www.ada-usa.com
Introduction
The ADA Tune Suite is a high performance radio frequency and satellite radio tuner designed especially for multi-room installations. The ADA Tune Suite can be custom configured with any combination of up to four RF (AM/FM/WX) or XM satellite radio modules. With the Tune Suite, you can listen to four different radio stations simultaneously in different rooms in your house. You can even cascade seven Tune Suite Main Frames together for any combination of up to twenty-seven different AM, FM, WX, or XM stations at once. The Tune Suite can also be controlled with either ADA keypads or PC based control systems from other companies. The Tune Suite main frame is available in several ways listed below. This makes it possible to design the Tune Suite for specific needs of each particular installation.

Quadritune Chassis Configurations

Quadritune Rack Mount or Select
The Tune Suite chassis is available in the standard 19” rack mount chassis or in the 17” wide Select Series version.

Quadritune HP
If there are two or more XM modules installed, the mainframe requires a larger power supply due to the higher current draw of XM modules. Any other configuration can utilize the standard chassis.

Quadritune (BA)
The Quadritune chassis can also be ordered without the front panel control head. This option is useful if the unit is being installed in an equipment cabinet and being controlled with ADA keypads and/or other control system.

TSS-1 Single Tuner Black Box
The TSS-1 is a smaller chassis can house a single TFM-1 RF module or XMM-1 XM Satellite Radio module. This makes it possible to easily and affordably upgrade an existing ADA system.

Technical Support
At Audio Design Associates, we realize that our dealer network is the best in the industry. We believe that it is our responsibility to offer complete technical support for designing, installing, and configuring our products. You can contact us at any time during the following hours:

Toll Free EST Hours 8:30AM-5:30PM EST (5:30 AM to 2:30 PM PST) Call: 1-800 HD-AUDIO

Keeping Records for Future Reference
Record the serial number located on the back of your Tune Suite in the section below. Also note your dealer’s name, phone number, and date of purchase. We recommend that you keep your purchase receipt with this manual you may need to refer to this information in the future.

Serial #:_______________________ ADA Dealer: ___________________________
Phone Number_________________ Date of Purchase: ______________________
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.


The Quad Tuner Does Not Require a BI-3000. When connecting directly to an ISO-232, supply 12-15VDC. Neg (-) Pin 1 • Pos (+) Pin 4

ADA Bus®

1 Gnd
2 Fdbk
3 Cntrl
4 +VDC

QuadriTune

230V~ 1/4 ASB
115V~ 1/2 ASB HI-POWER X-FORMER

2 OR MORE XM MOD's

115 V

Mounting Hole
IR Receiving Eye
Power Switch
Optional Front Panel Controls and Display Window
XM Modules Installed
RF Modules Installed
XM Signal Strength Meters
RF Signal Strength Meters
Carry Handle
AC Inlet
AC Power Fuse
AC Voltage Selection Switch
Address and Baud Rate Selection Switch
ADA Bus Connector
Module One Left and Right Analog Audio Output
Tune Suite Front and Rear Panel Drawings
Tune Suite Installation Manual

www.ada-usa.com
To Tune Suite RF tuner modules

### AAC-1 Antenna Combiner and AAS-4 Signal Splitter Connections

**External 12 Vdc power supply for line amplifier**

**For best results, ADA recommends SE Engineering SE 879 www.seengineer.com**

**AML-1 AM loop antenna (Provided)**

**THE AML-1 loop antenna is directional-rotate for best reception**

**Locate AAS-4 near Tune Suite**

**Locate and position antennas for optimum reception**

**Locate AAC-1 where it is protected from the weather**

**Use RG-6 cable terminated with threaded F-Type connectors for all connections**

**For best results, RG-6 cable to AML-1 should be exactly 6’**
To XM Tuner Modules

Locate XM antenna and XMLA-1 in attic or indoor location for best reception

XM antenna positioned for best reception

50 Ohm mini coax cable connected to the XM antenna

75 Ohm RG-6 cable from XMLA-1 to XMLS-4

Locate XMLS-4 near Tune Suite

50 Ohm mini coax cables from XMLS-4 to the Tune Suite

IMPORTANT NOTE: There must be at least two modules connected from the XMLS-4 to the Tune Suite for this configuration to work

50 Ohm mini coax connected to the XM antenna

XM antenna positioned for best reception

To XM Tuner Modules

XMLA-1 Line Amplifier and XMLS-4 Line Splitter Connections

Locate XM antenna and XMLA-1-50 in attic or other indoor location for best reception

XM antenna positioned for best reception

50 Ohm cable connected to the XM antenna

Run 50 Ohm mini coax RG-174 or RG-316 terminated with SMB connectors from XMLA-1-50 to XMLS-4-50 (available from www.l-com.com)

Locate XMLS-4-50 near Tune Suite

50 Ohm RG-174 or RG-316 cables terminated with SMB connectors from XML-4-50 to the Tune Suite

IMPORTANT NOTE: There must be at least two modules connected from the XMLS-4-50 to the Tune Suite for this configuration to work

50 Ohm cable connected to the XM antenna

XM antenna positioned for best reception

To XM Tuner Modules

XMLA-1-50 Line Amplifier and XML-4-50 Line Splitter Connections
XM Connection Option Using the XMLA-1-50 Line Amplifier to a Single XM Module

Locate XM antenna and XMLA-1-50 in attic or other indoor location for best reception

XM antenna positioned for best reception indoors

Preterminated 50 Ohm mini coax cable connected to the XM antenna

Locate XMLS-4-50 near Tune Suite

50 Ohm RG-174 or RG-316 cables terminated with SMB connectors from XMLS-4-50 to the Tune Suite

To XM Tuner Modules

IMPORTANT NOTE: There must be at least two modules connected from the XMLS-4-50 to the Tune Suite for this configuration to work

XM Antenna and XML-4-50 Line Splitter Connections
Run 75 Ohm RG-6 cable from XMLA-1 to XMC-75.

Locate XM antenna and XMLA-1 in attic or indoor location for best reception.

Locate XMLS-4 near Tune Suite.

Locate XMC-75 Impedance Converter Connections.

Special cable connected to the XM antenna.

50 Ohm cable from XMC-75 to single XM Module.

XMLA-1 Line Amplifier and XMC-75 Impedance Converter Connections.

Direct Connection from XM Antenna to Single XM Module.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.
Making Connections to Your Tune Suite
Before making any connections, turn off the power to your preamplifier and power amplifier. Make certain that all your connections are secure and that there is no tension on the cables that could cause them to pull loose later.

Audio Connections
Connect a pair of high-quality interconnect cables from the Output jacks from each module of the Tune Suite to any line level input jacks on your preamplifier or multiroom controller. If the Tune Suite is connected to an ADA Suite 16 or Suite 8 x 8 multiroom preamplifier, take note of the inputs used so the keypad’s labeling corresponds correctly.

Antenna Connection Options
There are multiple antenna connection options available for the Tune Suite. These options are dependent upon how the Tune Suite is configured. The previous pages illustrate the numerous antenna connections using line amplifiers and splitters in 75 ohm and 50 ohm configurations.

FM Antenna Connections
Adequate FM reception and subsequent sound quality is largely dependent upon your choice and location of the antenna. There are several options to consider when selecting an antenna and connecting it to the Tune Suite.

Outdoor FM Antenna
For best reception and maximum noise rejection, we recommend the use of a high-quality outdoor FM antenna. Although this requires a little extra effort, the additional stations you can receive and the superior sound quality will be worthwhile. For best results, ADA recommends the FM antenna model Number SE 879 available from SE Engineering at www.seengineer.com.

Cable Transmission
Many cable companies transmit FM stations and cable TV audio signals along with the cable TV channels. With some cable operators, the quality of the FM radio signal can be very good, depending on the quality of their equipment. Check with your local cable company about the availability of FM stations and possible additional charges for this service. Connection is the same as connecting a second television: Connect a signal splitter to the incoming cable connection and use a 75 ohm F-type connector to connect your television to one output of the splitter and the tuner to the other output.

Powered Antennas
A small powered indoor antenna is sometimes useful when it’s impractical to install an outdoor antenna or where FM transmission is not available via cable or a community TV/FM antenna. However, powered antennas sometimes add noise and distortion to the RF signal. In most cases, you can receive signals better with the supplied dipole antenna.

AM Antenna Connections
An AML-1 loop antenna is supplied with the AAC-1 antenna combiner. This antenna provides excellent reception in most cases. Once installed you will need to rotate the AML-1 for optimum reception.
XM Antenna
The XM antenna can be used either separately or in conjunction with the XMLA-1 Line Amplifier and XML-4 Line Splitter in 50 Ohm or 75 ohm configurations as illustrated previously. For optimum reception and noise rejection, the XM antenna utilizes 50 Ohm mini-coax cable terminated with an SMB type connector.

AC Line Cord
Once you have connected your audio cables and antennas, plug the female end of the IEC-65 standard AC cord firmly into the rear mounted AC receptacle and make sure that it is properly seated, and then connect the male end to the AC power source.

Activating XM Satellite Radio Service
If the Tune Suite is equipped with XM satellite radio modules, you may want to activate your module(s) to receive all the channels XM radio can offer you, otherwise you will only receive free-to-air channels. To activate your XM service, you will need to obtain the radio hardware ID numbers from each module and have a valid credit card available.

Once you have obtained all your Radio Hardware ID numbers, you can activate the service by either going to XM Radio’s website at www.xmradio.com or calling XM support at (800) 852-9696. After you provide the necessary information to XM support, they will activate the module by sending activation data to the specified XM modules. The XM modules must remain ON until the activation data is received, otherwise it might be missed and you will need to contact XM once again.

To insure proper activation, ADA strongly advises that your radio must change channels at least once after activation to retain activation; otherwise you will need to contact XM once again. This is very important to retain your complete activation; otherwise you may have partial or no activation after a power cycle. A partial activation is having some channels but not all. The same applies if a change to your account is made, such as adding or removing premium channels.

Obtaining the XM Radio Hardware ID Number
If your unit is equipped with front panel controls, you can use the channel Up or Down controls to access XM channel 0 where you will see the Radio Hardware ID. You can also enter setup mode to find your Radio Hardware ID. Repeat the setup procedures for all XM modules in the unit.

If your system is equipped with MC-5000, MC-5500, or MC-4500 keypad(s), you can also use the numeric keypad to directly select channel 0 and Enter. This is where you will see the Radio Hardware ID. You can also use the channel Up and Down commands to access XM channel 0 to view the Radio Hardware ID number. You will need to repeat the XM activation procedure for all modules in the unit.
Important Instructions when Creating a Third Party Control System for XM Modules

When programming a touchscreen or other third party control system to control XM, it is mandatory to create commands for the operations below.

- There must be a way of accessing XM channel 0. This can be accessed either by direct access or by using Channel Up or Down to access XM channel 0.
- There must be commands to select Channel Numbers Up and Down.
- There must be commands to select Categories Up and Down.
- Once within a category there should be a way to Select Stations Up and Down.
- Feedback of all the provided XM information must be displayed on the control interface.

It is important to note that Stations Up and Down are for a designated category and will not go through all stations passing other Categories. The Tune Suite PCOS testing program and HEX commands provided in this manual are essential in creating these commands. If you have any questions regarding programming a control system to control XM modules, please contact Audio Design Associates.

Preset Number 1

XM Satellite Radio channel 0 is pre-programmed to occupy Preset 1 from the factory; the rest of the 29 of the 30 presets will be blank. This makes it easy to obtain the Radio ID number.

Special Diagnostics Parameters for XM Satellite Modules

There is a special diagnostic menu for XM modules that provides important information about XM satellite transmission including the radio ID number for activation as well as signal strength and other diagnostic tests. This information is obtained through the front panel setup menu, ADA keypads, or the PCOS tester program.

Obtaining XM Diagnostic Information Using the Front Panel Controls

1. Enter the setup Menu by holding down the Left Select button.
2. Once in the setup menu, Radio ID number in the second row in the display will alternate between Radio ID and its eight character ID number.
3. Rotate the left Select knob until the cursor is flashing over the R of Radio ID in the second row of the setup display.
4. Press the Center Tune knob to select the next XM Diagnostic information category.
5. Continue pressing the center Tune knob to advance through all the XM diagnostic information. XM diagnostic information is listed in the chart on the following page.
6. You can escape the diagnostic menu by selecting M > to return to the main menu.
Obtaining XM Diagnostic Information Using MC-5000, MC-4500, or MC-5500 Keypads

If your system is equipped with MC-5000, MC-5500, or MC-4500 keypad(s), you can use the numeric keypad to access diagnostic information. Once there you will see your Radio, Signal Strength and other Diagnostic Information for each module.

1. Enter the setup Menu by pressing 000 then Enter on the numeric section of the keypad.
2. Once in the setup menu, Radio ID number in the display will alternate between Radio ID and its eight character ID number.
3. Press the ( *) information button to select the next XM Diagnostic information category.
4. Continue pressing the ( *) information button to advance through all the XM diagnostic information. XM diagnostic information is listed in the diagnostic chart.

<table>
<thead>
<tr>
<th>XM Diagnostic Tests</th>
<th>Label</th>
<th>Front Panel and ADA Keypad Display Readout</th>
</tr>
</thead>
<tbody>
<tr>
<td>RADIO ID</td>
<td>Radio ID label</td>
<td>Alternates between Radio ID label and 8 character ID number</td>
</tr>
<tr>
<td>RELEASE</td>
<td></td>
<td>Static display of software release number</td>
</tr>
<tr>
<td>SIGNAL TEST</td>
<td></td>
<td>Alternates between Signal Test label and signal strength</td>
</tr>
<tr>
<td>XM Diagnostic Test 1</td>
<td>QOS TEST</td>
<td>Alternates between “QOS Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 2</td>
<td>TERR TEST</td>
<td>Alternates between “Terr Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 3</td>
<td>SAT 1 TEST</td>
<td>Alternates between “Sat 1 Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 4</td>
<td>SAT 2 TEST</td>
<td>Alternates between “Sat 2 Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 5</td>
<td>TUNER TEST</td>
<td>Alternates between “Tuner Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 6</td>
<td>SDEC STATUS 1</td>
<td>Alternates between “SDEC Status 1” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 7</td>
<td>SDEC STATUS 2</td>
<td>Alternates between “SDEC Status 2” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 8</td>
<td>SDEC STATUS 3</td>
<td>Alternates between “SDEC Status 3” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 9</td>
<td>SDEC STATUS 4</td>
<td>Alternates between “SDEC Status 4” Label and diagnostics</td>
</tr>
</tbody>
</table>
Obtaining XM Diagnostic Information Using the PCOS Tester Program

The Tune Suite PC control program helps you to configure and program the Tune Suite system for operation with user interface control components such as ADA keypads and third party control systems. You can also use the PCOS the program to access the XM diagnostic information.

To connect a computer to the Tune Suite, you will need the ISO-CAT to interface the computer with the Tune Suite. The Tune Suite PC control program was developed to help configure and program the Tune Suite system for operation with user interface control components such as ADA keypads and third party control systems. The program also makes it easy to store preset stations into memory. You can also save the each configuration on disc for later recall. The Tune Suite PC control program is available for download at www.ada-usa.com

The Tune Suite control program has tabs along the top to open different sets of commands. The sections in the Tune Suite control program include Configuration, Module Control, and Slot sections where you can store stations into preset memory, label their call letters, and save the configuration on disc.

You can store up to thirty of your favorite XM stations into memory for each module installed in the Tune Suite. The program has commands to select station channels and preset numbers. There are buttons so you can scroll through station categories (category), and station names too. Additionally, the program features diagnostic tools such as signal strength, serial number, and song information updating.

For RF modules, the program allows you to store thirty of your favorite FM, AM, or WX stations into memory and even label their call letters. The program can navigate RF frequencies by direct access, tune, seek or preset functions. The program also lets you select the frequency band, stereo or mono operation, and stereo blending and de-emphasis.
Front Panel Operation of RF Modules

Storing and Labeling Preset Stations in the Tune Mode

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob
Rotating the center Tune knob: Scrolls RF radio frequencies up (clockwise) or down (counterclockwise). FM Frequencies tune in 200 kHz increments AM frequencies tune in 10 kHz increments WX stations tune in 25 kHz increments between the 7 available weather band stations. The far right of the display shows the band, or preset number or stored four character label.

Right Knob
Pressing the right Mode knob: Opens up preset memory bank. Once open, rotate the right knob to scroll to the desired preset number 1-30. If there is a channel already stored, an asterisk appears next to the preset number. Pressing the right knob a second time allows you to label the station. Rotate the center knob to move the cursor and rotate the right knob to select the desired character. To delete the stored preset station, press the center Tune knob when the preset memory bank is open. Pressing the right knob again stores the selected frequency. Note: You can only store preset stations in the Tune or Seek mode.

| T U N E R | 1 1 0 4 . 5 | F M | T |
| T U N E R | 1 1 0 4 . 5 | P R 2 0 | U |
| T U N E R | S T O R E ? * P R 2 0 | N |
| T U N E R | L A B E L ? | K F O G | E |

Storing, and Labeling Preset Stations in the Seek Mode

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob
Rotating the center Tune knob: Rotating the tune knob clockwise will seek the next active radio station, rotating the Tune knob counterclockwise will seek the previous active station.

Right Knob
Pressing the right Mode knob: Opens up preset memory bank. Once open, rotate the right knob to scroll to the desired preset number 1-30. If there is a channel already stored, an asterisk appears next to the preset number. Pressing the right knob a second time allows you to label the station. Rotate the center knob to move the cursor and rotate the right knob to select the desired character. To delete the stored preset station, press the center Tune knob when the preset memory bank is open. Pressing the right knob again stores the selected frequency. Note: You can only store preset stations for RF modules in the Tune or Seek mode.
Front Panel Control in the Preset Mode

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules. Rotating the center Tune knob: Scrolls preset stations up (clockwise) or down (counterclockwise). Only stations programmed into memory will appear when selecting preset radio stations with the center Tune knob. Preset numbers not stored in memory are bypassed.

Right Knob
Rotating the right Tune knob: Scrolls between Tune, Seek, Preset, Band, and Stereo/Mono modes.

Front Panel Control in the Band Mode

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob
Rotating the center Tune knob: Scrolls through FM, AM and WX frequency bands. When scrolling between bands the last tuned frequency for each band is selected.

Right Knob
Rotating the right Tune knob: Scrolls between Tune, Seek, Preset, Band, and Stereo/Mono
Front Panel Control to Change Stereo/Mono Settings

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob
Rotating the center mode knob: Selects stereo or mono for the selected station. Since AM and WX stations don't broadcast in stereo, this setting only applies for FM stations.

Front Panel Operation of XM Modules

Front Panel Control in the Channel Mode

Left Knob
Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob
Rotating the center Tune knob: Scrolls XM channel numbers up (clockwise) or down (counterclockwise). Once scrolling stops, the displayed channel is selected. If channel is stored as a preset, the preset number also appears. Pressing the center knob will delete the channel from the selected preset number. Pressing the center Tune knob: Scrolls station information: station/category/station name/artist/song.

Right Knob
Rotating the right Mode knob: Scrolls between tuning modes (channel number, genre, preset number, and station). Pressing the right Tune knob: Opens up preset memory bank. Once open, rotate the right knob to scroll to the desired preset number 1-30. If there is a channel already stored, an asterisk appears next to the preset number. Pressing the right knob again stores the selected channel. To delete the stored preset station, press the center Tune knob when the preset memory bank is open. Note: You can only store preset stations in the CH or CAT mode.
Front Panel Control in the Category Mode

Left Knob

Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob

Rotating the center Tune knob: Scrolls categories up (clockwise) or down (counterclockwise). When you stop rotating the knob, the first station within the category is selected. Pressing the center Tune knob: Causes the CAT label to flash in the display. While flashing, rotate the center knob to select the desired station within the current category. If no station is selected within fifteen seconds, the display will return to the last selected station.

Right Knob

Rotating the right Mode knob: Scrolls between tuning modes (channel number, genre, preset number, and station). Pressing the right Tune knob: Opens up preset memory bank. Once open, rotate the right knob to scroll to the desired preset number 1-30. If there is a channel already stored, an asterisk appears next to the preset number. Pressing the right knob again stores the selected channel. To delete the stored preset station, press the center Tune knob when the preset memory bank is open. Note: You can only store preset stations in the CH or CAT mode.

Front Panel Control in the Preset Mode

Left Knob

Rotating the left Select knob: Moves the cursor to select between modules.

Center Knob

Rotating the center Tune knob: Scrolls channel and preset numbers up (clockwise) or down (counterclockwise).

Right Knob

Rotating the right Tune knob: Toggles between signal strength and XM channel number.
Setting Configuration Parameters with the Front Panel Controls

There are several operational parameters that can be changed using the front panel controls. Adjustable parameters include setting the unit to blank out the display, activate the IR receiver, and set the Unit Address to match the setting on the rear panel. For RF modules, you can set the muting levels for AM, FM, and WX, turn on Stereo filtering, and set the de-emphasis levels. For XM Modules, you can obtain several levels of diagnostic information including the radio ID number, and signal strength and other diagnostic information regarding XM satellite transmission. This diagnostic information is described earlier in this manual.

Entering the Setup Menu

Hold down the left Select knob for five seconds to activate the setup menu. Generally, while in the setup menu, you can change between parameters by rotating the left Select knob. Once the parameter is selected, you can change the setting by rotating the center Tune knob.

Using Front Panel Controls to View Slot Settings

Left Knob
Rotating the left Select knob: Moves the cursor to select setup parameters. Note: You can exit the setup menu by selecting M > and Pressing the Left Select knob.

Center Knob
Rotating the center Tune knob: Scrolls between all four slot positions to view the current parameters of each module. The cursor must be on the top line while choosing slot positions.

<table>
<thead>
<tr>
<th>SLOT</th>
<th>SETUP TYPE = TUNER</th>
<th>AM LEVEL = 2</th>
<th>SET TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNIT ADDRESS = 0</td>
<td>IR = OFF</td>
<td>BLANKING = OFF</td>
<td>M &gt;</td>
</tr>
</tbody>
</table>

Using Front Panel Controls to Set AM Muting Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To scroll through setup parameters: (AM level, FM level, WX level, Filtering, and de-emphasis, and software revision number.) Leave cursor at first parameter: AM level.

Right Knob
Rotate the right Mode knob: To change the AM level muting level for the selected module from 0 to 10. Lower settings allow selection of weaker stations during scanning.
Using Front Panel Controls to Set FM Muting Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To scroll to the FM Level setup parameter.

Right Knob
Rotate the right Mode knob: To change the FM level muting level for the selected module from 0 to 10. Lower settings allow selection of weaker stations during scanning.

Using Front Panel Controls to Set WX Muting Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To scroll to the WX Level setup parameter.

Right Knob
Rotate the right Mode knob: To change the WX level muting level for the selected module from 0 to 10. Lower settings allow selection of weaker stations during scanning.

Using Front Panel Controls to Set De-emphasis Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To change the setup level parameter to de-emphasis.

Right Knob
Rotate the right Mode knob: To change the de-emphasis level to 50 uS or 75 uS.

Using Front Panel Controls to Set the Noise Filter Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To change the setup level parameter to Filter.

Right Knob
Rotate the right Mode knob: To change the filter to Auto or Off. With the filter in the Auto position, noise associated with weaker stations will be filtered out.
Using Front Panel Controls to Obtain the Software Revision Level-RF Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotate the center Tune knob: To change the setup level parameter to SW Rev. The current system software number will be displayed for the selected module.

Unit Address
The Tune Suite is delivered from the factory with its address already preset for use. However, it may be necessary to change the address when using multiple Tune Suites in a system or when installing additional modules in the chassis. Having a separate address is what makes it possible to control each module independently of the others. There is a rotary switch on the rear panel that lets you set the address for the unit. It is necessary to insure that the address in the setup menu matches setting on the rear panel. The addresses can be set from 0-9 or A-F and correspond to the spreadsheet below.

Using Front Panel Controls to Set Unit Address

Left Knob
Rotate the left Select knob: To highlight the Unit Address parameter.

Center Knob
Rotating the Center Tune knob: To change the Unit Address from 0-9 or A-F.

<table>
<thead>
<tr>
<th>DIP SW SET</th>
<th>Baud Rate</th>
<th>SLOT 1</th>
<th>SLOT 2</th>
<th>SLOT 3</th>
<th>SLOT 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>19200 baud</td>
<td>Addr 1 / Mod 1</td>
<td>Addr 1 / Mod 2</td>
<td>Addr 1 / Mod 3</td>
<td>Addr 2 / Mod 1</td>
</tr>
<tr>
<td>1</td>
<td>19200 baud</td>
<td>Addr 2 / Mod 2</td>
<td>Addr 2 / Mod 3</td>
<td>Addr 3 / Mod 1</td>
<td>Addr 3 / Mod 2</td>
</tr>
<tr>
<td>2</td>
<td>19200 baud</td>
<td>Addr 3 / Mod 3</td>
<td>Addr 4 / Mod 1</td>
<td>Addr 4 / Mod 2</td>
<td>Addr 4 / Mod 3</td>
</tr>
<tr>
<td>3</td>
<td>19200 baud</td>
<td>Addr 5 / Mod 1</td>
<td>Addr 5 / Mod 2</td>
<td>Addr 5 / Mod 3</td>
<td>Addr 6 / Mod 1</td>
</tr>
<tr>
<td>4</td>
<td>19200 baud</td>
<td>Addr 6 / Mod 2</td>
<td>Addr 6 / Mod 3</td>
<td>Addr 7 / Mod 1</td>
<td>Addr 7 / Mod 2</td>
</tr>
<tr>
<td>5</td>
<td>19200 baud</td>
<td>Addr 7 / Mod 3</td>
<td>Addr 8 / Mod 1</td>
<td>Addr 8 / Mod 2</td>
<td>Addr 8 / Mod 3</td>
</tr>
<tr>
<td>6</td>
<td>19200 baud</td>
<td>Addr 9 / Mod 1</td>
<td>Addr 9 / Mod 2</td>
<td>Addr 9 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>19200 baud</td>
<td>Addr 1 / Mod 1</td>
<td>Addr 1 / Mod 2</td>
<td>Addr 1 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>19200 baud</td>
<td>Addr 2 / Mod 1</td>
<td>Addr 2 / Mod 2</td>
<td>Addr 2 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>19200 baud</td>
<td>Addr 3 / Mod 1</td>
<td>Addr 3 / Mod 2</td>
<td>Addr 3 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>A</td>
<td>19200 baud</td>
<td>Addr 4 / Mod 1</td>
<td>Addr 4 / Mod 2</td>
<td>Addr 4 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>B</td>
<td>19200 baud</td>
<td>Addr 5 / Mod 1</td>
<td>Addr 5 / Mod 2</td>
<td>Addr 5 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>C</td>
<td>19200 baud</td>
<td>Addr 6 / Mod 1</td>
<td>Addr 6 Mod 2</td>
<td>Addr 6 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>D</td>
<td>19200 baud</td>
<td>Addr 7 / Mod 1</td>
<td>Addr 7 / Mod 2</td>
<td>Addr 7 / Mod 3</td>
<td>X</td>
</tr>
<tr>
<td>E</td>
<td>1200 baud</td>
<td>Addr 1 / Mod 1</td>
<td>Addr 1 / Mod 2</td>
<td>Addr 1 / Mod 3</td>
<td>Addr 2 / Mod 1</td>
</tr>
<tr>
<td>F</td>
<td>1200 baud</td>
<td>Addr 2 / Mod 2</td>
<td>Addr 2 / Mod 3</td>
<td>Addr 3 / Mod 1</td>
<td>Addr 3 / Mod 2</td>
</tr>
</tbody>
</table>
Using Front Panel Controls to Set Front Panel Blanking

Left Knob
Rotate the left Select knob: To highlight the Blanking parameter on the second row.

Center Knob
Rotating the Center Tune knob: Changes the amount of time before the front panel blanks out from 0-60 seconds. If you do not want the display to blank out, set the blanking parameter to Off.

Using Front Panel Controls to Set Module Type

Left Knob
Rotate the left Select knob: To highlight the Set Type parameter. Pressing the Left Knob: Changes the display to show the slot configuration.

Center Knob
Once in the slot configuration menu, Rotating the Center Tune knob: Sets the tuner module type to either Tuner, XM Sat, or None.

Using Front Panel Controls to Set the IR Receiver

Left Knob
Rotate the left Select knob: To highlight the IR parameter.

Center Knob
Rotating the center Tune knob: Sets the front panel receiver to be either On or Off.

Using Front Panel Controls to View XM Diagnostic Information-XM Module Specific

Left Knob
Rotate the left Select knob: To position the cursor on the second row.

Center Knob
Rotating the center Tune knob: Changes the XM diagnostic parameter. The chart below describes each of the XM diagnostic parameters.

<table>
<thead>
<tr>
<th>XM Diagnostic Tests</th>
<th>Label</th>
<th>Front Panel and ADA Keypad Display Readout</th>
</tr>
</thead>
<tbody>
<tr>
<td>RADIO ID</td>
<td>Alternates between Radio ID label and 8 character ID number</td>
<td></td>
</tr>
<tr>
<td>RELEASE</td>
<td>Static display of software release number</td>
<td></td>
</tr>
<tr>
<td>SIGNAL TEST</td>
<td>Alternates between Signal Test label and signal strength</td>
<td></td>
</tr>
<tr>
<td>XM Diagnostic Test 1</td>
<td>QOS TEST</td>
<td>Alternates between “QOS Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 2</td>
<td>TERR TEST</td>
<td>Alternates between “Terr Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 3</td>
<td>SAT 1 TEST</td>
<td>Alternates between “Sat 1 Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 4</td>
<td>SAT 2 TEST</td>
<td>Alternates between “Sat 2 Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 5</td>
<td>TUNER TEST</td>
<td>Alternates between “Tuner Test” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 6</td>
<td>SDEC STATUS 1</td>
<td>Alternates between “SDEC Status 1” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 7</td>
<td>SDEC STATUS 2</td>
<td>Alternates between “SDEC Status 2” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 8</td>
<td>SDEC STATUS 3</td>
<td>Alternates between “SDEC Status 3” Label and diagnostics</td>
</tr>
<tr>
<td>XM Diagnostic Test 9</td>
<td>SDEC STATUS 4</td>
<td>Alternates between “SDEC Status 4” Label and diagnostics</td>
</tr>
</tbody>
</table>
RF Tuner Operation with the ADA MC-5000 Keypad

**Direct Selection of a Specific Preset**
Press the desired channel number using the numerical keypad, then press enter.

The display indicates the station's frequency and band. If the station was stored into preset memory, the preset number is displayed. If you labeled the preset with call letters, etc. the label will be displayed.

**Changing Frequency Bands and Selecting Mono or Stereo Operation for FM**
Press the pause (II) button to select between the FM, AM and WX (weather) bands. Press the stop (■) button to toggle between mono or stereo operation while in the FM frequency band.

**Scrolling Radio Frequencies:**
Press the rewind (<<) and fast forward (>>) buttons to incrementally change the radio frequency.

These buttons will change FM frequencies in 200 kHz increments for the FM band, 10 kHz increments for the AM band, and 25 kHz for the WX band.

**Scrolling Stations Stored into Preset Memory**
Press the source button that controls the RF tuner such as TN 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets. You can also use the ADJ < and > buttons to scroll through the stations stored into preset memory.

**Scanning Frequencies with the Seek Buttons**
Press the < and > buttons to seek radio stations up and down. In the seek mode, the RF tuner will select next or previous active radio station.
XM Tuner Operation with ADA MC-5000 Keypad

Directly Entering an XM Channel Number:
Press the desired channel number using the numerical keypad, then press enter.

```
1 2 3 4 5 6 7 8 9 0
```

The display indicates the channel number. After a few seconds, the XM channel name will be displayed. Next, the artist and song or program title will be displayed if available. If there is any missing information in this sequence, it will be bypassed.

Scrolling through XM Channel Numbers:
Press the rewind << and fast forward >> buttons to scroll through XM channel numbers.

```
<< >> << >> << >>
```

The display will indicate the channel number. After a few seconds XM channel information will follow as shown above. Note: The MC-5000 display has twelve available characters; some information will scroll across the display.

Scrolling Stations Stored into Preset Memory
Press the source button that controls the XM tuner such as TN 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets.

```
<< >>
```

The display will indicate the preset and channel number. After a few seconds, the XM channel name will be displayed, then the song title and artist will be displayed.

Scrolling Channel Categories
Press the < and > buttons to scroll through channel categories such as rock, news, classical, etc.

```
1 2 3 4 5 6 7 8 9 0
```

Once you stop at the desired category, the first station within that category will be selected. After a few seconds XM channel information will follow as shown above. Note: The MC-5000 display has twelve available characters; some information will scroll across the display.

Scrolling through Channel Names
Press the stop ( ) and Pause ( ) buttons to scroll through channel names within the current category. Use the < and > buttons to change category.

```
<< >>
```

Once you stop at the desired channel. The current artist and song being played will also be displayed after a few seconds.
RF Tuner Operation with MC-5500 and MC-4500 Keypad

Direct Selection of a Specific Preset
Press the desired channel number using the numerical keypad, then press enter.

The display indicates the station's frequency and band. If the station was stored into preset memory, the preset number is displayed. If you labeled the preset with call letters, etc. the label will be displayed.

Changing Frequency Bands and Selecting Mono or Stereo Operation for FM
Press the pause (II) button to select between the FM, AM and WX (weather) bands. Press the stop (□) button to toggle between mono or stereo operation while in the FM frequency band.

Scrolling Radio Frequencies:
Press the rewind << and fast forward >> buttons to incrementally change the radio frequency.

These buttons will change FM frequencies in 200 kHz increments for the FM band, 10 kHz increments for the AM band, and 25 kHz for the WX band.

Scrolling Stations Stored into Preset Memory
Press the source button that controls the RF tuner such as TN 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets. You can also use the ADJ < and > buttons to scroll through the stations stored into preset memory.

Scanning Frequencies with the Seek Buttons
Press the < and > buttons to seek radio stations up and down. In the seek mode, the RF tuner will select next or previous active radio station.
XM Tuner Operation with MC-5500 and MC-4500 Keypad

Directly Entering an XM Channel Number:
Press the desired channel number using the numerical keypad, then press enter.

The display indicates the channel number. After a few seconds, the XM channel name will be displayed. Next, the artist and song or program title will be displayed if available. If there is any missing information in this sequence, it will be bypassed.

Scrolling through XM Channel Numbers:
Press the rewind << and fast forward >> buttons to scroll through XM channel numbers.

The display will indicate the channel number. After a few seconds XM channel information will follow as shown above. Note: The MC-5000 display has twelve available characters; some information will scroll across the display.

Scrolling Stations Stored into Preset Memory
Press the source button that controls the RF tuner such as TN 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets. You can also use the ADJ < and > buttons to scroll through the stations stored into preset memory.

The display will indicate the preset and channel number. After a few seconds, the XM channel name will be displayed, then the song title and artist will be displayed.

Scrolling Channel Categories
Press the < and > buttons to scroll through channel categories such as rock, news, classical, etc.

Once you stop at the desired category, the first station within that category will be selected. After a few seconds XM channel information will follow as shown above. Note: The MC-5000 display has twelve available characters; some information will scroll across the display.

Scrolling through Channel Names
Press the stop (■) and Pause (II) buttons to scroll through channel names within the current category. Use the < and > buttons to change category.

Once you stop at the desired channel. The current artist and song being played will also be displayed after a few seconds.
Storing and Labeling RF and XM Preset Stations

Scrolling Radio Frequencies:
Press the rewind << and fast forward >> buttons to change the radio frequency or XM channel to store into preset memory.

The display will show the frequency or XM channel and the preset number if it had been already programmed.

Open the Memory Bank
Open the Memory Bank by pressing 0, 0, then press enter.

The display will show current tuned frequency and the first available open preset location.

Storing the Station into Preset Memory
Press the Enter button to store the current frequency or channel into memory:

The display will ask you if you want to store the preset, press the Enter button to confirm. After the preset has been stored, an asterisk will appear next to the preset number.

Scanning through available presets.
Press the Forward or Back button to scroll through available preset stations.

If a preset bank is open, there will be no asterisk next to the preset number. If a station has been stored, there will be an asterisk.

Labeling Presets for RF Modules Only, (You cannot label XM presets since XM information is already provided)
Press the Enter button to open the labeling sub menu, then press the forward and back buttons to change between the four available characters and press the fast forward or rewind buttons to select the character. Press enter again to exit label menu.

Clearing a Preset
Press the stop button to clear the current preset.

When the preset has been cleared, the asterisk will go out to show that the preset is open again.
**XM Tuner Operation with ADA MC-5011 Keypad**

**Scrolling through XM Channel Numbers:**
Press the rewind << and fast forward >> buttons to scroll through XM channel numbers.

**Scrolling Stations Stored into Preset Memory**
Press the source button that controls the XM tuner such as FM 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets.

**Scrolling Channel Categories**
Press the > button to scroll through channel categories such as rock, news, classical, etc.

**Scrolling through Channel Names**
Press the Pause (II) button to scroll through channel names within the current category.

---

**RF Tuner Operation with ADA MC-5011 Keypad**

**Scrolling Radio Frequencies:**
Press the rewind << and fast forward >> buttons to incrementally change the radio frequency in 200 kHz increments for the FM band, 10 kHz increments for the AM band, and 25 kHz for the WX band.

**Scrolling Stations Stored into Preset Memory**
Press the source button that controls the RF tuner such as FM 1 to sequentially scroll through the stored preset numbers. Of the thirty available presets, only those stored into memory will be available while scrolling; this prevents having to scroll through unused presets.

**Scanning Frequencies with the Seek Button**
Press the > button to seek radio stations up. In the seek mode, the RF tuner will select next or previous active radio station.

**Changing Frequency Bands**
Press the pause (II) button to select between the FM, AM and WX (weather) bands.
Controlling the Tune Suite with the PCOS Testing Program

Introduction
The Tune Suite PC control program was developed to help configure and program the Tune Suite system for operation with user interface control components such as ADA keypads and third party control systems. The program also makes it easy to store preset stations into memory. You can also save the each configuration on disc for later recall. The Tune Suite PC control program is available for download at www.ada-usa.com.

The Tune Suite control program has tabs along the top to open different sets of commands. The sections in the Tune Suite control program include Configuration, Module Control, and Slot sections where you can store stations into preset memory, label their call letters, and save the configuration on disc.

You can store up to thirty of your favorite XM stations into memory for each module installed in the Tune Suite. The program has commands to select station channels and preset numbers. There are buttons so you can scroll through station categories (category), and station names too. Additionally, the program features diagnostic tools such as signal strength, serial number, and song information updating.

For RF modules, the program allows you to store thirty of your favorite FM, AM, or WX stations into memory and even label their call letters. The program can navigate RF frequencies by direct access, tune, seek or preset functions. The program also lets you select the frequency band, stereo or mono operation, and stereo blending and de-emphasis.

Configuration Page
When the tester program is first opened, the main configuration page is displayed so you can establish communication from the PC to the Tune Suite.

Setting Com Port
When you open the program for the first time, it will typically open in the Demo mode. You will then need to select the correct communication port on your computer. COM 1 is typically the port that your computer will use for communication with the Tune Suite. If COM 1 doesn't work try the other COM ports. To determine if you have established a connection, select the Control tab and try one of the commands such as Tune or Seek.

Setting the Baud Rate
Set the baud rate (1,200 or 19,200 bps) to match the baud rate set on the rear panel. The factory default baud rate setting of the Tune Suite is set to the optimum setting of 19,200 bps.
Setting the Bus Address
One of the main features of the Tune Suite is that you use several of them together in a single system. When using multiple Tune Suites, each unit and module has its own address for independent control. When using the program, set the address for the main frame you want to control.

Control Page
After selecting the Control page, you can control the Tune Suite’s operation parameters as follows:

RF Modules
Frequency Up and Down in 100 kHz increments
Direct Frequency Selection
Preset Selection Up and Down
Direct Preset Selection
Seek Up and Down
Frequency Band (FM, AM, WX)
Stereo/Mono Operation
75 uS or 50 uS de-emphasis Selection
High Frequency Blend

XM Modules
Channel Number Up and Down
Direct Channel Number Selection
Song Information Updating
Station Name Up and Down
Station Category Up and Down
Direct Preset Up and Down
XM Diagnostics

Slot Control Page
There are four separate Slots for each of the four modules that can be housed in the Tune Suite’s mainframe. Once you select the desired module slot, select the type of module (RF or XM) installed in the slot with the check box in the lower right hand corner. Once you have chosen the type of tuner module, you can configure the modules.
RF Modules

The Slot page for RF modules is configured in a spreadsheet-type format. There are thirty rows that represent each of the available station presets. There are also six columns that correspond to the following options for each station:

- Preset label
- Frequency
- Band
- Mono or Stereo Operation
- High Frequency Filtering
- De-emphasis level

The label column can be individually labeled and the columns for Frequency, Band, Stereo/Mono operation, high frequency filtering and de-emphasis all have corresponding pull down menus.

Configuring RF Preset Stations

The RF Slot page is configured in a spreadsheet-type format. There are thirty rows that represent each of the available station presets. There is also a column where you can enter the call letters or type of station (rock, jazz) for each of the thirty available presets.

1. Select the desired cell in the first Label column. It becomes highlighted so you can label the preset with call letters or any other label up to four characters.
2. Using the Band pull down menu, select the frequency band the preset station is in (FM, AM, WX).
3. Select the preset station frequency using the Frequency pull down menu.
4. For FM frequencies only, set the Mono or Stereo operation, High frequency filtering, and De-emphasis level. These functions do not apply for AM and WX stations.

Configuring XM Preset Stations

Since XM satellite radio feeds back most of the information about each station and category including artist and song, all you have to set are the station presets. You have thirty station presets available for each XM module. Select the desired cell in desired Preset row number. Using the pull down menu to select the XM channel number that you want to store into each preset station location.
Retrieve Command
Whenever you make changes to a module, you can capture them with the PC program for saving and later recall with the Retrieve command. These include storing preset station, labeling call letters, setting stereo or mono operation.

Uploading Presets with the Retrieve Command
1. Configure the RF or XM module using the optional front panel controls or the PC control program.
2. Select the Send button. All the programmed settings will then be loaded into the selected Tune Suite module.
3. Repeat for all modules installed into the Tune Suite.

Send Command
The Send command is similar to the Retrieve command. Once you have configured the module on the Slot page, you can upload all the new settings into the Tune Suite for recall. This advanced feature vastly speeds up the setup process for the Tune Suite.

Downloading Presets into the Tune Suite with the Retrieve Command
1. Configure the RF or XM module using the optional front panel controls or the PC control program.
2. Select the Send button. All the programmed settings will then be loaded into the selected Tune Suite module.
3. Repeat for all modules installed into the Tune Suite.

Save Command
Once you configure the slot, the save command lets you save the configuration for the module to disc. This makes configuring other modules as simple as loading the file and selecting the Send command.

Saving Stored information from each Slot page with the Save Command
1. Configure the RF or XM tuner module as described above
2. Retrieve the configuration stored into the Tune Suite
3. Select the Save button. A save as dialog box then opens
4. Name the configuration for each module. Be sure to use the TNR extension.

Load Command
The Load command lets you recall previously stored XM and RF module configuration for use in the future. This significantly reduces installation time for future installations since most of your installations take place in the same geographical areas. Furthermore, if a problem occurs with the unit, it can be reconfigured in minutes.

Recalling Stored information from each Slot page with the Load Command
1. Select the Load button so the load dialog box appears
2. Locate and select the desired *.TNR file
3. The stored configuration is then displayed in the slot configuration page.
4. Use the Send command to upload the loaded configuration into the Tune Suite.
Installing and Configuring Individual Modules
Tune Suite modules can also be installed independently of the Tune Suite main frame. Rather than installing the RF and XM tuner modules in the Tune Suite main frame, you can install them in separate tuner chassis called the TSS-1 and control them via the ADA Bus. This option is especially useful for upgrading existing ADA multiroom systems.

Setting the Address for Individual Modules
When installed individually, you need set the address and baud rate for each module in the system. This is accomplished with an eight pole dip switch on each module. Refer to the chart on page 36 for setting the address and baud rate for the RF or XM module.

Installing Individual TFM-1 or XMM-1 Modules with the TSS-1
The TSS-1 is a small chassis can house a single TFM-1 RF module or XMM-1 XM Satellite Radio module. This makes it possible to easily and affordably upgrade an existing ADA system. For example, in a system with a Trinity installed, you can add a single separate TSS-1 with an XM module for XM Satellite Radio transmission. This would expand the system at a fraction of the cost of installing a complete Tune Suite mainframe.

When installing a separate TSS-1 with a TFM-1 or XMM-1 module, you will need to set its address and baud rate. This is accomplished with an 8 position DIP switch located at one end of the module. The eighth switch sets the power on or off. The following chart shows the chart for setting the module’s address and power. Also included on the TSS-1 are the following connections as shown in the diagram. Refer to the Making Connections section of the manual to connect the TSS-1 to your particular system.

Left and Right RCA Jacks
Either an SMB or F connector for the antenna
Four Pin screw-type ADA Bus connector
Barrel-type connector for external DC Supply

TSS-1 Single Module Front and Rear Panel

Left and Right Analog Audio Output
Antenna Input

Signal Strength Meter
8 Pole DIP Switch for Programming
ADA Bus Connector

External 15 Vdc 500 mA Power Supply
Controlling Single Tune Suite Modules
There are several methods for controlling a single Tune Suite module. If you install a Tune Suite module on the ADA Bus with existing keypads, you can control the module by simply connecting it to the ADA bus. You can also use a third party touchscreen to control the module using the HEX codes in the back of the manual. In this application, you would need to interface to the ADA Bus with the ISO-CAT serial interface. Another method is to use the SE-5K with a Tune Suite control head.

The previous page illustrates the front and rear panel drawings for the TSS-1 with a TFM-1 module installed. The only difference for the XMM-1 module is the antenna input and signal strength meter.

Installing a TSS-1 into a Suite 16 or Suite 8 x 8 System
Simply connect an ADA bus wire from the ADA Bus connector to the WH-2000 wiring harness and control it with the MC-5000, MC-5500, or MC-5011 keypads. In this application, the ADA bus is supplying power to the unit, so you need to set Switch #8 on the DIP switch to the upper On position.

Installing a TSS-1 into a Delta System
In this application, you will need to install the power supply TSS-1 on Pins 1 and 4 of the ADA Bus connector and install a BI-3000 bus isolation box.

1. Cut the connector on the power supply and install the negative wire to Pin 1.
2. Install the positive wire on pin 4.
3. Connect the ADA Bus wire to the BI-3000
4. Connect the BI-3000 to the wiring harness.
5. Set Switch #8 on the DIP switch to the upper On position.
6. Set the address as applicable.

Powering the TSS-1 Externally and Controlling it with a Third Party Control System
In this application, connect the external power supply to the DC barrel connector and connect the ADA Bus to an ISO-CAT then to the external control system. If you choose to use a third party control system you’ll need to program and HEX commands listed the back of the manual.

1. Plug the external DC supply to the DC barrel connector on the TSS-1 chassis.
2. Set Switch #8 on the DIP switch to the upper On position to supply power to the ISO CAT.
3. Set the address as applicable.
4. Use the HEX commands in conjunction with the third party control system to control the TSS-1.

The third diagram shows an external power supply for the Tune Suite module also controlling power connected to the ADA Bus.
Installing Additional Modules into the Tune Suite Main Frame

It sometimes may be desirable to add or reconfigure the Tune Suite chassis with additional TFM-1 or XMM-1 modules. When installing additional modules in the Tune Suite's mainframe make sure that if you are using two or more XM modules in a single mainframe you must use the higher power (HP) version of the Tune Suite main frame. This is important to note if you plan on upgrading the Tune Suite anytime in the future it is proudly best to choose the higher powered version that can accept any configurations of modules.

Once you ever determined that the Tune Suite main frame can except the additional modules, you could add additional Modules when passes desired.

To Install Tune Suite modules into the Main Frame:
1. Remove the cover panel screws on the Tune Suite chassis
2. To install the new module, remove all the screws on the rear panel and nuts that hold the rear panel in place including the screws holding the AC plug in place, the screw next to the rear panel address switch, and the screws that fasten the modules to the rear panel.
3. Remove the screws around the perimeter of the rear of the chassis that fasten the rear panel to the main chassis. There are two on each side, and three on the bottom.
4. After all the screws are removed, you can remove the rear panel.
5. Note the module position labeled on the rear panel for the purpose of addressing.
6. Install the module in the first open slot. Make sure that the module is seated correctly in the slot and that the multipin connector and connects and seats properly.
7. Reattach the rear panel. Start with the screws on the bottom to hold the panel in place. Then reinstall the screws and nuts for the AC receptacle and the remaining rear panel screws.
8. For the XFM-1 module simply thread and fasten the nut for the threaded F connector.
9. For the XMM-1 there is a plate provided to cover the larger size hole. Slide the plate over the SMB connector.
10. **Gently** screw the nut over the SMB connector and **do not over tighten the nut or it may strip.**
11. Reinstall the cover panel.
12. If necessary, set the address as described in the setup section.
### Single Tuner Module Dipswitch Settings

<table>
<thead>
<tr>
<th>Address / Module</th>
<th>SW 1</th>
<th>SW 2</th>
<th>SW 3</th>
<th>SW 4</th>
<th>SW 5</th>
<th>SW 6</th>
<th>SW 7</th>
<th>SW 8</th>
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| **1200 Baud** | | | | | | | | |
| Address 1 Module 1 | On | On | Off | On | On | On | N/A |
| Address 1 Module 2 | Off | On | Off | On | On | On | N/A |
| Address 1 Module 3 | On | Off | Off | On | On | On | N/A |
| Address 2 Module 1 | Off | Off | Off | On | On | On | N/A |
| Address 2 Module 2 | On | On | On | On | On | On | N/A |
| Address 2 Module 3 | Off | On | Off | On | On | On | N/A |
| Address 3 Module 1 | On | Off | On | On | On | On | N/A |
| Address 3 Module 2 | Off | Off | On | On | On | On | N/A |
## AM/FM/WX Hex Commands

<table>
<thead>
<tr>
<th>Format of Command String</th>
<th>Start</th>
<th>Constant</th>
<th>Command</th>
<th>Bus</th>
<th>Module</th>
<th>End</th>
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<td>4Dh</td>
<td>command</td>
<td>bus</td>
<td>module</td>
<td>B8h</td>
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<table>
<thead>
<tr>
<th>Bus Address</th>
<th>Command</th>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
</tr>
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<tbody>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 = 31h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>3 = 33h</td>
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<td>4 = 34h</td>
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<tr>
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<tr>
<td>6 = 36h</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 = 37h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 = 38h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 = 39h</td>
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### Normal Operation

<table>
<thead>
<tr>
<th>Command</th>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
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<tbody>
<tr>
<td>Get Frequency</td>
<td>11h</td>
<td>12h</td>
<td>13h</td>
</tr>
<tr>
<td>Tune Up</td>
<td>63h</td>
<td>73h</td>
<td>83h</td>
</tr>
<tr>
<td>Tune Down</td>
<td>64h</td>
<td>74h</td>
<td>84h</td>
</tr>
<tr>
<td>Seek Up</td>
<td>65h</td>
<td>75h</td>
<td>85h</td>
</tr>
<tr>
<td>Seek Down</td>
<td>66h</td>
<td>76h</td>
<td>86h</td>
</tr>
<tr>
<td>Stereo/Mono Toggle</td>
<td>1Eh</td>
<td>1Eh</td>
<td>1Eh</td>
</tr>
<tr>
<td>Band Toggle</td>
<td>4Dh</td>
<td>4Dh</td>
<td>4Dh</td>
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<tr>
<td>Preset Up</td>
<td>17h</td>
<td>1Dh</td>
<td>4Eh</td>
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<tr>
<td>Preset Down</td>
<td>18h</td>
<td>18h</td>
<td>18h</td>
</tr>
<tr>
<td>Get Deemphasis</td>
<td>45h</td>
<td>45h</td>
<td>45h</td>
</tr>
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<td>Deemphasis Toggle</td>
<td>44h</td>
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<td>3Fh</td>
<td>3Fh</td>
<td>3Fh</td>
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<tr>
<td>Filter Toggle</td>
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<td>3Eh</td>
<td>3Eh</td>
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<td>Get AM Seek Level</td>
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<td>A0h</td>
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<td>A2h</td>
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<tr>
<td>Get FM Seek Level</td>
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<td>C0h</td>
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<tr>
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<td>C1h</td>
<td>C1h</td>
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</table>
### Tune Suite Installation Manual

**Audio Design Associates**

**In Preset Mode**

<table>
<thead>
<tr>
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<th>Start</th>
<th>Constant</th>
<th>Constant</th>
<th>Numeric</th>
<th>ID code</th>
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<td>C2h</td>
<td>C2h</td>
<td>C2h</td>
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<td>D0h</td>
<td>D0h</td>
<td>D0h</td>
<td></td>
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<tr>
<td>*or send 0,0,enter from keypad</td>
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**Numeric Command Format**

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<td>4Dh</td>
<td>97h</td>
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<tr>
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<td>1=03h</td>
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<td>Feedback Format</td>
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<td>Characters</td>
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<td>36h</td>
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<td></td>
<td></td>
<td>7</td>
<td>37h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
<td>38h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
<td>39h</td>
<td></td>
</tr>
</tbody>
</table>
## XM RADIO Hex Commands

### Format of Command String

<table>
<thead>
<tr>
<th>Command String</th>
<th>Start</th>
<th>Constant</th>
<th>Command</th>
<th>Bus</th>
<th>Module</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Characters total</td>
<td>B8h</td>
<td>4Dh</td>
<td>command</td>
<td>bus</td>
<td>module</td>
<td>B8h</td>
</tr>
<tr>
<td>Bus Address 0 = 30h</td>
<td>0 = 30h</td>
<td>1 = 20h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 1 = 31h</td>
<td>1 = 31h</td>
<td>2 = 21h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 2 = 32h</td>
<td>2 = 32h</td>
<td>3 = 22h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 3 = 33h</td>
<td>3 = 33h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 4 = 34h</td>
<td>4 = 34h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 5 = 35h</td>
<td>5 = 35h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 6 = 36h</td>
<td>6 = 36h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 7 = 37h</td>
<td>7 = 37h</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bus Address 8 = 38h</td>
<td>8 = 38h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus Address 9 = 39h</td>
<td>9 = 39h</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Command

<table>
<thead>
<tr>
<th>Command</th>
<th>For Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get Station/Song</td>
<td>11h</td>
<td>12h</td>
<td>13h</td>
</tr>
<tr>
<td>Channel Up</td>
<td>63h</td>
<td>73h</td>
<td>83h</td>
</tr>
<tr>
<td>Channel Down</td>
<td>64h</td>
<td>74h</td>
<td>84h</td>
</tr>
<tr>
<td>Category Up</td>
<td>65h</td>
<td>75h</td>
<td>85h</td>
</tr>
<tr>
<td>Category Down</td>
<td>66h</td>
<td>76h</td>
<td>86h</td>
</tr>
<tr>
<td>Station down within category</td>
<td>1Eh</td>
<td>1Eh</td>
<td>1Eh</td>
</tr>
<tr>
<td>Station up within category</td>
<td>4Dh</td>
<td>4Dh</td>
<td>4Dh</td>
</tr>
<tr>
<td>Preset Up</td>
<td>17h</td>
<td>1Dh</td>
<td>4Eh</td>
</tr>
<tr>
<td>Preset Down</td>
<td>18h</td>
<td>18h</td>
<td>18h</td>
</tr>
<tr>
<td>Get XM Radio ID Number</td>
<td>A0h</td>
<td>A0h</td>
<td>A0h</td>
</tr>
<tr>
<td>*or send 0, enter from keypad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turn on Signal Display *</td>
<td>B0h</td>
<td>B0h</td>
<td>B0h</td>
</tr>
<tr>
<td>*or send 0,0,0, enter from keypad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Get ADA Firmware Version</td>
<td>C0h</td>
<td>C0h</td>
<td>C0h</td>
</tr>
<tr>
<td>Preset Mode*</td>
<td>D0h</td>
<td>D0h</td>
<td>D0h</td>
</tr>
<tr>
<td>*or send 0,0, enter from keypad</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### In Preset Mode

<table>
<thead>
<tr>
<th>Command</th>
<th>For Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select Preset Up</td>
<td>65h</td>
<td>75h</td>
<td>85h</td>
</tr>
<tr>
<td>Select Preset Down</td>
<td>66h</td>
<td>76h</td>
<td>86h</td>
</tr>
<tr>
<td>Command</td>
<td>Start</td>
<td>Constant</td>
<td>Constant</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Delete Preset</td>
<td>1Eh</td>
<td>1Eh</td>
<td>1Eh</td>
</tr>
<tr>
<td>Escape From Preset Mode</td>
<td>4Dh</td>
<td>4Dh</td>
<td>4Dh</td>
</tr>
</tbody>
</table>

**Numeric Command Format**

<table>
<thead>
<tr>
<th>Start</th>
<th>Constant</th>
<th>Constant</th>
<th>Numeric</th>
<th>ID code</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>B8h</td>
<td>4Dh</td>
<td>97h</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Command**

| Number 0 | 30h |
| Number 1 | 31h |
| Number 2 | 32h |
| Number 3 | 33h |
| Number 4 | 34h |
| Number 5 | 35h |
| Number 6 | 36h |
| Number 7 | 37h |
| Number 8 | 38h |
| Number 9 | 39h |
| Decimal Point | 2Eh |
| Enter      | 2Ah  |
## Feedback Format

<table>
<thead>
<tr>
<th>Feedback Format</th>
<th>Start</th>
<th>12 display</th>
<th>Characters</th>
<th>Bus</th>
<th>Module ID</th>
<th>End</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 characters total</td>
<td>0Fh</td>
<td>Display</td>
<td>Characters</td>
<td>0 = 30h</td>
<td>Mod 1 = 80h</td>
<td>F0h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 = 31h</td>
<td>Mod 2 = 40h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 = 32h</td>
<td>Mod 3 = 20h</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 = 33h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 = 34h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 = 35h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6 = 36h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7 = 37h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8 = 38h</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9 = 39h</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ADA Tune Suite Features

Unique Fully Expandable Modular Design
Each Quadritune mainframe can accept one to four RF or XM or other future modules. Up to seven Quadritune mainframes can be cascaded to allow individual control of twenty-seven modules.

Fully Featured RF Modules
Each Quadritune RF module are capable of tuning FM, AM, and WX weather band frequencies.

XM Satellite Radio Capable
100 Channels of digital quality radio stations available with XM satellite radio service. Over one-third of XM stations are 100% commercial free.

Thirty Presets for Each Module
The Quadritune is capable of storing a combination of 30 preset stations for each RF and XM tuner module.

Incredibly Easy to Use
The Quadritune can be controlled from the front panel knobs, keypads with a computer based control system.

Computer Control for Complete Two-way Communication
Optional RS-232 or USB interfaces provide complete control and feedback of all active modules.

Seamless Integration
ADA Bus technology provides integration into multiroom systems for control with keypads.

Beautiful Front Panel Display
Four Line, twenty-four character backlit LCD display provides complete operational status.

Advanced Audio Circuitry and Premium Quality Parts
Only the finest high-quality electronic components are used in the Quadritune’s design and manufacture. The result is CD-quality sonic performance in a radio tuner.
ADA Tune Suite Specifications

Output Level
2 VRMS

Frequency Response
20-16 kHz (±3dB)

FM Sensitivity
Mono-IHF 12 dB
Stereo 35 dBf for
50 db Quieting

FM Harmonic Distortion
0.16% (mono)
0.28% (stereo)

FM Signal to Noise Ratio
72dB (Stereo)

FM Capture Ratio
1.5 dB

Stereo Separation
45 dB

Adjacent Channel Selectivity
93 db

AM Sensitivity
4 uV

AM Selectivity
20 dB

AM S/N Ratio
50 dB

Dimensions
3.5” x 19” x 16.5”
89 mm x 483 mm x 419 mm

Weight
10 lbs.
4.5 kg