



AUDIOVOX[®]
ELECTRONICS CORP.

**SATELLITE DIGITAL AUDIO
CONTROL AND
RECEIVER SYSTEM**

for Use With

**XM[®] SATELLITE RECEIVER
SYSTEM
MODEL SRXM-001**

**OWNER'S
MANUAL**

128-6210A
1 of 12

CONTENTS

Trademarks	2
How to Subscribe to XM® Radio	2
Introduction	2
How the System Operates	2
Satellite System Control Unit (SCU)	3
Satellite Radio Receiver Unit (RRU)	4
Satellite Radio RF Modulator	4
Functional Operation	5
Powering Up the System	5
Selecting a Satellite Channel	5
Using the Up/Down Buttons	6
Displaying the Identification (ID) Code	6
Selecting Channel Categories or Groups	6
Directly Accessing a Channel	7
Presetting a Desired Channel	7
Special Functions Using the Shift Button	7
Direct FM Frequency Selection	8
System Default Shift Code	8
LCD Contrast Shift Code	8
LCD Backlight Dimming Shift Code	8
Button Confirmation Tone Shift Codes	8
LCD Backlight Color Shift Codes	9
Category/Normal Selection Mode Shift Codes	9
Channel Skip Shift Code	9
Display Messages	9
Troubleshooting Considerations	10
Specifications	10
Warranty	11

Trademarks

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Other product names mentioned in this manual may be trademarks or registered trademarks of their respective companies and are hereby acknowledged.

How To Subscribe to XM® Radio

Listeners can subscribe by visiting XM® on the Web at www.xmradio.com, or by calling XM's® Listener Care at (800) 852-9696. Customers should have their Radio ID ready; for details, refer to "Display the ID Code".

Introduction

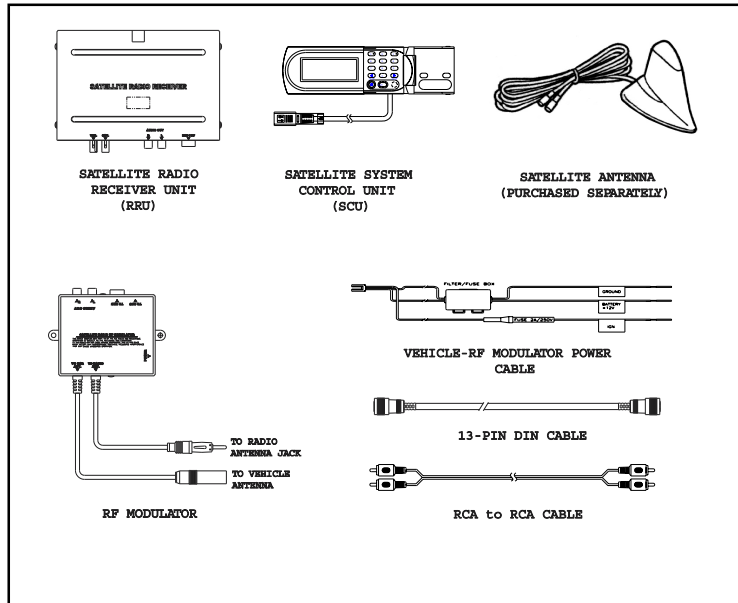
XM® Satellite Radio is a new and exciting audio experience on your radio dial; it provides you with digital audio programming at the touch of a button. By using two geo-stationary satellites, XM® Radio provides digital quality sound, with a choice of 100 channels of diverse programming, including music, news, history, sports, and talk.

To make this system available to the motoring public, Audiovox has engineered a state-of-the-art XM® Satellite Radio System, consisting of a Satellite Antenna (purchased separately), a Satellite Radio Receiver Unit (RRU), a Satellite Radio RF Modulator, a Satellite System Control Unit (SCU) and an optional wireless remote control. By using the FM section of any car stereo system, the RF signal information is demodulated and produces the audio output to your existing stereo system speakers. Since XM® Satellite Radio will operate through the FM stereo system, adjustment of the audio functions (volume, tone, balance, etc.) is made by using the controls on the car radio, while selection of the desired audio channel is made using the Satellite System Control Unit (SCU).

How the System Operates

Control of system functions is achieved by the wired SCU, which can be conveniently mounted to the dashboard in a number of configurations. In addition, an optional wireless remote (Audiovox P/N SAT-RC) to control SCU functions is also available. The XM® Satellite Radio signals are received by the antenna and are routed to the RRU, whose

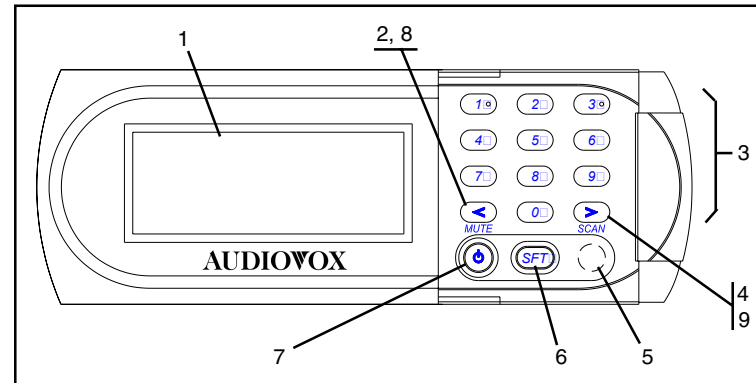
RF output is supplied to the RF Modulator. The RF Modulator, in turn, is capable of transmitting on seven (7) FM frequencies; namely, 88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz, 89.1MHz and 89.3MHz. The frequency is selected using the FM band of the existing vehicle radio. (The default FM frequency is 88.5MHz.) Select the FM frequency having the least noise or static, and then use the SCU to choose the XM® channel for your listening pleasure.



XM® Satellite Receiver System





SATELLITE SYSTEM CONTROL UNIT (SCU)

The SCU provides for complete control of the system by means of its Liquid Crystal Display (LCD) and associated function buttons.



Satellite System Control Unit (SCU)

1. **Liquid Crystal Display (LCD):** Presents a display of various system functions, such as channel/category number, type of broadcast, song title, performer(s), advisory/error messages, etc.
2. **Down Directional (<) Button:** When momentarily pressed, channel number decreases with each press; when pressed and held, the channel number decreases continuously. Release the button when the desired channel number is displayed. When used in conjunction with the Shift (SFT) button, the *MUTE* function is enabled.
3. **Keypad Buttons 0-9:** These buttons are used to directly enter a desired channel number. They are also used when entering and recalling preset channel numbers into memory.
4. **Up Directional (>) Button:** When momentarily pressed, channel number increases with each press; when pressed and held, the channel number increases continuously. Release the button when the desired channel number is displayed. When used in conjunction with the Shift (SFT) button, the *SCAN* function is enabled.

5. **Infrared Detector:** Provides detection of the infrared control signal transmitted by an optional wireless remote control unit (P/N SAT-RC) for remote operation. Make sure no obstructions are blocking the signal path.
6. **Shift (SFT) Button:** When momentarily pressed, this button provides access to additional functions, such as audio MUTE, channel SCAN, direct channel access, category select, etc.
7. **Power On/Off () Button:** Press this button to apply power to the Satellite Radio Receiver. The associated stereo radio must be turned on and off separately using its power switch.
8. **Mute Function Button:** Momentarily press the shift (SFT) button; then press and hold the down directional () button to enable the audio mute function. When enabled, the audio program is muted and the Mute icon () appears in the lower right corner of the SCU display. Press any button to exit the mute function.
9. **Scan Function Button:** Momentarily press the shift (SFT) button; then press and hold the Up directional () button to enable the up channel scan function. When enabled, each channel is scanned in the up direction for 10 seconds before moving on to the next active channel. Each channel number appears in reverse image (white-on-black) format. This permits channel preview or introductory sampling of channel programming. Press any button to exit the scan function.

SATELLITE RADIO RECEIVER (RRU)

The RRU is the central data receiving equipment required to process the satellite signals from the external antenna; it contains the processing logic needed to recognize, decode and distribute the incoming program information. The RRU is typically installed under the seat or in the trunk/rear of the vehicle.

SATELLITE RADIO RF MODULATOR

The RF Modulator receives the satellite RF signals from the RRU and provides the necessary FM pass-band logic to recognize and pass these signals on to your existing vehicle's FM stereo system. So, when your radio is tuned to one of the FM frequencies between 88.1MHz and 89.3MHz, you can enjoy XM® programming. The RF Modulator is typically mounted behind or under the dashboard.

Functional Operation

Functional operation of the system is controlled by the buttons on the SCU; i.e., the sequence in which they are pressed, and the length of time button activation occurs.

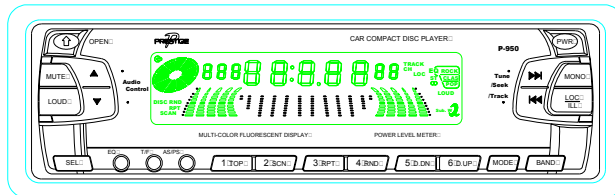
POWERING UP THE SYSTEM

After the system has been properly installed and activated, the system can be powered on in the following manner:


1. Turn on the existing vehicle radio and tune the radio to the selected FM frequencies between 88.1MHz and 89.3MHz; if you are not sure which frequency to select on your existing radio, use the existing radio's SEEK, SCAN or TUNE function to tune through the frequencies until the satellite signal is played through the speakers.

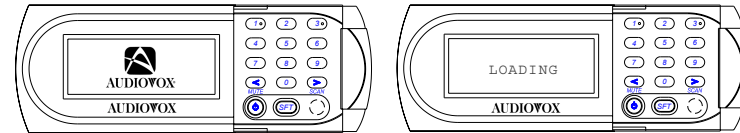
NOTE: The default FM frequency is 88.5MHz.

2. Enter this frequency into memory using one of the preset buttons on the existing radio, making a note of the FM band and preset number.



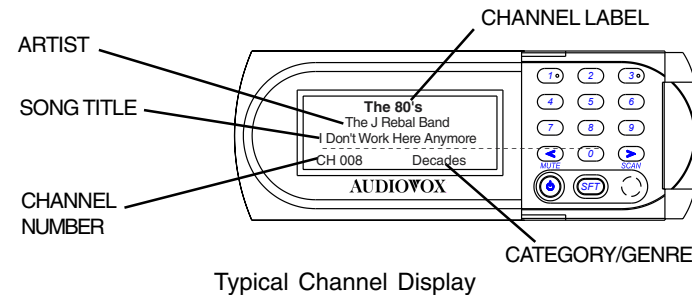
Typical Car Radio

3. At the Satellite System Control Unit (SCU), momentarily press the Power On/Off button (); the Audiovox logo appears and then slowly fades out. This may be followed by the **LOADING** message on the display. This display indicates that the system is acquiring and loading the satellite information.



The Audiovox Logo Appears-and-XM® Satellite Program is Loaded

4. After program loading is complete, the display reverts to either preview channel 001 (if the system is being activated for the first time), or it will return to the last XM® channel being used when the system was turned off. A typical channel display will appear as shown below.



Typical Channel Display

NOTE: If program reception is noisy or contains audible background static, switch your radio to another FM frequency. Refer to **Direct FM Frequency Selection** later in this manual for details on how to select another FM frequency.

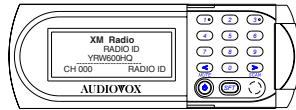
SELECTING A SATELLITE CHANNEL

A satellite channel can be selected in three ways; namely, by scrolling station-by-station, by selecting a group or category or by direct access.

DISPLAYING THE IDENTIFICATION (ID) CODE

Before you listen to XM® Radio, you must subscribe to the service. To do so, your tuner ID code must be used to identify your radio. This code not only allows you to subscribe to XM® Radio, but also allows you to report any problems. To display the radio ID, proceed as follows:

1. Use the Up/Down buttons to access channel **000**; note that the ID for your radio is displayed in the following format:
2. Make a note of your radio ID; then contact XM® Radio through the web, or by phone, to subscribe to the service.



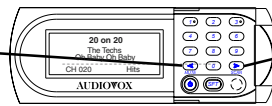
USING THE UP/DOWN BUTTONS

To select an XM® channel using just the Up/Down directional buttons, proceed as follows:

1. Momentarily press the Up direction (\triangleright) button to advance, one step at a time, to the next higher channel.
To advance rapidly in the upward direction, press and hold the Up direction button until the desired channel is reached; then release the button.
2. Conversely, momentarily press the Down direction (\triangleleft) button to advance, one step at a time, to the next lower channel.
To advance rapidly in the downward direction, press and hold the Down direction button until the desired channel is reached; then release the button.

MOMENTARY PRESS:
ADVANCE DOWNWARD
ONE CHANNEL AT A
TIME

PRESS AND HOLD:
CONTINUOUS ADVANCE
DOWNWARD



MOMENTARY PRESS:
ADVANCE UPWARD ONE
CHANNEL AT A TIME

PRESS AND HOLD:
CONTINUOUS ADVANCE
UPWARD

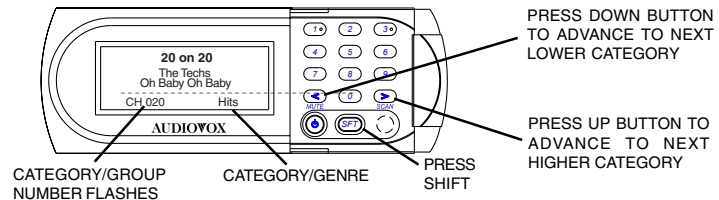
NOTE: When an invalid (no broadcast) channel is encountered, the channel is automatically skipped.

SELECTING CHANNEL CATEGORIES

To select a specific group or category of entertainment, proceed as follows:

1. Press the Shift (SFT) button; the first channel number in that category (CH **020** in the “Hits” category, for example) flashes for 5 seconds.
2. While the number is flashing, momentarily press the Up directional (\triangleright) button.
3. The category will advance to the next higher category (for example, **040** in the “Rock” category), which will also flash for 5 seconds. If no further advance is made, the category will then remain steady.
4. To select a category in the down direction, repeat step 1 and momentarily press the Down directional (\triangleleft) button. This will advance to the next lower category.

NOTE: Each category or group is assigned a sequential block of channels. To navigate within a category, enter Shift (SFT) **0981** Shift (SFT). When in this mode, switching between different channels within a category, the tuning will automatically wrap around from the last to the first channel in that category or vice-versa. When a new category is chosen, the radio will automatically select the first channel in that category.

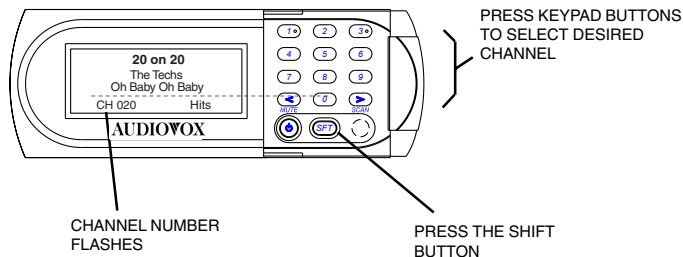


DIRECTLY ACCESSING A CHANNEL

To directly access a specific channel, proceed as follows:

1. Press the Shift (SFT) button; the channel number (CH **020**) flashes for 5 seconds in reverse image format.
2. While the channel number is flashing for the 5-second period, use the number buttons on the keypad and enter the desired channel.
3. The selected channel number will flash for 5 seconds and then remain steady.

NOTE: If the selected channel is not available, (---) will appear on the display and the system will remain tuned to the previous channel.

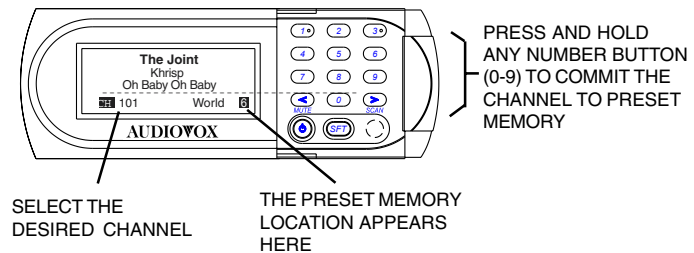


PRESETTING A DESIRED CHANNEL

Up to 10 channels can be preset on your SCU for rapid and easy access. Channel preset is accomplished as follows:

1. Select the desired channel you wish to save in memory by using the directional buttons, direct access method, or category select tuning method.
2. With the desired channel accessed and displayed, press and hold any one of the numbered keypad buttons for more than 1 second.

3. Note that the preset number appears in reverse image format in the lower right-hand corner of the display on the same line as the channel number.
4. Repeat the procedure in steps 2 and 3 to save nine other desirable channels for quick access.



SPECIAL FUNCTIONS USING THE SHIFT BUTTON

There are a number of user preference functions that can be adjusted simply by using the Shift (SFT) button with a specific number code. These functions are explained in the following paragraphs.

In general, a shift/code is entered in the following manner:

SFT 0 9 X X SFT, where:

(SFT) represents Shift button activation and **XX** represents the specific function code. (The 4-digit code always starts with **09**.)

DIRECT FM FREQUENCY SELECTION

The selection of a specific FM frequency can be directly accessed using the appropriate code; these codes are presented as follows:

Modulator Frequency Codes

CODE	SELECTION
21	88.1MHz
22	88.3MHz
23	88.5MHz
24	88.7MHz
25	88.9MHz
26	89.1MHz
27	89.3MHz

NOTE: The default frequency is 88.5MHz

SYSTEM DEFAULT SHIFT CODE

Defaults refer to the settings that are entered at the factory. When code **31** is entered, the system is reset to the following defaults:

1. All channel presets cancel and revert to channel 1.
2. The LCD backlighting reverts to Green
3. Button confirmation tone is turned on.
4. All deleted channels are reinstated.

LCD CONTRAST SHIFT CODE

To change the LCD contrast:

1. Enter code **35**.
2. Use the Up and Down directional buttons to increase or decrease display contrast, respectively.
3. Press the SFT button to exit LCD contrast mode.

LCD BACKLIGHT DIMMING SHIFT CODE

To enable the LCD backlight dimming feature:

1. Enter shift code **36**.
2. Use the Up and Down directional buttons to increase or decrease display dimming, respectively.
3. Press the SFT button to exit LCD backlight dimming mode.

BUTTON CONFIRMATION TONE SHIFT CODE

Normally, a beep confirmation tone is heard each time a button is pressed on the SCU. To silence this confirmation tone:

1. Enter code **40**.
2. To turn the beep tone on again, enter code **41**.

LCD BACKLIGHT COLOR SHIFT CODES

The backlight color for the LCD display can be either Green or Amber; to select the desired color, enter one of the following codes:

1. **Green-----51**
2. **Amber---- 52**

CATEGORY/NORMAL SELECTION MODE SHIFT CODES

To invoke the category selection mode:

1. **Category----- 81:** A channel change is possible only within the same category or group.
2. **Normal-----80:** Return operation to the normal mode, whereby channels can be selected in sequential order up or down.

CHANNEL SKIP SHIFT CODE

If you wish to prevent acquisition of a particular channel during the channel selection process:

1. **Skip Channel----91:** The channel will be skipped over during channel selection.
2. **Recover Channel---- 90:** Regain access to the channel by using the direct selection method (shift plus station number) to select the skipped channel; then enter code **90**.

DISPLAY MESSAGES

When problems are encountered during XM® system operation, a message may appear on the display. The following table outlines the most common problems and provides a probable cause(s) for each and a suggested corrective action(s) to restore normal operation.

Display Messages

MESSAGE	DEFINITION	ACTION NEEDED
UPDATING	RRU is being updated with latest encryption code.	Wait until code update has been completed; channels 000 and 001 should function normally.
OFF AIR	The channel currently selected has stopped broadcasting.	Select another channel.
LOADING	System is acquiring XM audio or program information.	Wait until the system has received all information.
NO SIGNAL	Loss of, or weak, signal	1. Check antenna. 2. Change location.
ANTENNA	Antenna cable disconnected	Verify antenna cable connected.

Troubleshooting Considerations

The following table presents a few possible causes of system operating faults, their probable causes and the remedial action suggested to restore the system to normal operating conditions.

Troubleshooting Considerations

FAULT	PROBABLE CAUSE	CORRECTIVE ACTION
SCU Does not Turn On	Blown fuse, power cable not connected correctly, and/or SCU not connected to FM Modulator.	1. Check fuses. 2. Check power cable. 3. Check DIN cable connection between SCU and FM Modulator.
Check Antenna Display Message	The Satellite Antenna is not connected.	Check antenna connections to the RRU.
	The antenna itself or the antenna cable is faulty.	Contact system installer or vendor.
Audio Static or Loss of Clarity	FM Modulator frequency in use contains static.	Switch radio to another FM frequency.
	Vehicle antenna cable not connected to FM Modulator or vehicle radio.	Check antenna cable.
No Received Signal on SCU Display	Check for obstacles over or around antenna.	Change your location to eliminate nearby obstacles (bridges, tunnels, etc.).
No Sound	1. Audio cables not connected. 2. FM Modulator antenna connection. 3. Radio not tuned to proper FM Modulator frequency. 4. Mute mode selected on SCU.	1. Check audio cables at RRU and FM Modulator. 2. Check RF antenna cable connections between FM Modulator and vehicle/radio antenna. 3. Tune radio to proper frequency. 4. Deactivate Mute mode at SCU.

Specifications

GENERAL

Power Source	12 Vdc, Negative Ground
Max. Current Consumption	2.0 A
Dimensions:	
Satellite System Control Unit (SCU)	133mmL x 21.0 mm W x 47.5 mmH (5.24" x 0.83" x 1.87")
Satellite Radio Receiver Unit (RRU)	170mmL x 114.9 mm W x 30.5mmH (6.7" x 4.5" x 1.03")
RF Modulator	94.9mmL x 79.9 mm W x 26mm H (3.7" x 3.15" x 1.02")

Weight:

Satellite System Control Unit (SCU)	9.5 Oz (0.269Kg)
Satellite Radio Receiver Unit (RRU)	23.0 Oz (0.652Kg)
RF Modulator	6.5 Oz (0.184Kg)

RRU

Frequency Range	2,332.50 - 2,345.00MHz
Usable Sensitivity:	
Satellite	-94.0 dBm
Terrestrial	-90.0 dBm

AUDIO

Signal-to-Noise Ratio Separation	92 dB (IHF-A Network) 75 dB
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RF Modulator

Usable Frequencies	88.1MHz, 88.3MHz, 88.5MHz, 88.7MHz, 88.9MHz, 89.1MHz, 89.3MHz
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AUDIOVOX®
ELECTRONICS CORP.

36 MONTH LIMITED WARRANTY

AUDIOVOX CORPORATION (the Company) warrants to the original retail purchaser of this product that should this product or any part thereof, under normal use and conditions, be proven defective in material or workmanship within 36 months from the date of original purchase, such defect(s) will be repaired or replaced with new or reconditioned product (at the Company's option) without charge for parts and repair labor.

To obtain repair or replacement within the terms of this Warranty, the product is to be delivered with proof of warranty coverage (e.g. dated bill of sale), specification of defect(s), transportation prepaid, to an approved warranty station or the Company at the address shown below.

This Warranty does not extend to the elimination of externally generated static or noise, to correction of antenna problems, to costs incurred for installation, removal or reinstallation of the product, or to damage to tapes, compact discs, speakers, accessories, or vehicle electrical systems.

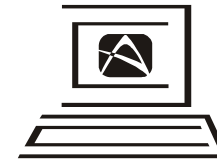
This Warranty does not apply to any product or part thereof which, in the opinion of the Company, has suffered or been damaged through alteration, improper installation, mishandling, misuse, neglect, accident, or by removal or defacement of the factory serial number/bar code label(s). THE EXTENT OF THE COMPANY'S LIABILITY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT PROVIDED ABOVE AND, IN NO EVENT, SHALL THE COMPANY'S LIABILITY EXCEED THE PURCHASE PRICE PAID BY PURCHASER FOR THE PRODUCT.

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