

User Guide to R100B Looped Repeater

Message repeater specifics:

- 1- Select the channel you will be using before applying power.
 - 2- Place antenna for best height and coverage. Standard CATV coax can be used to extend the antenna placement from the transmitter box.
 - 3- To change programming, press the CD tray button to open the drawer. Load a standard audio CD and close the tray. Playback will begin automatically.
 - 4- **For best results, avoid using a cd that has a short recording.**
- If your message is only a few minutes long, record multiple copies on a single disks so that the total length is about 40 mins or more. Longer lengths of cd insure best exercising of internal components for years of useful service.



R100B CD Repeater Infocaster

Installation and User information

Landmark Audio Technology

FCC-ID

FM350 R100

TEL:

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Setting up your antenna for best results. Situation A - MAXIMUM coverage

1- Set up the antenna as HIGH as possible. If you live in a two story house, place the flat twin-lead Dipole in a window box, pinned vertically using push pins, so that as much as possible of the "T" shaped radiator is in front of glass.

2- If using the simple whip antenna, arrange the wire so it is as vertical as possible, using tape or a push pin to hold it in as straight and vertical as you can.

See the picture below for how to pin the dipole in an inside window frame. BE sure to keep the first 18" to 2 feet of the feedline section at a clean right angle to the main direction of the "T" radiator as shown.

3- Remember that the body of a building blocks FM signals which are line-of-sight, so an unobstructed "view" from the antenna is key to good coverage.



Applying RF shield blocks. You will find several clamshell style RF blocks, supplied to prevent RF from travelling on the skin of the audio input lines and causing distortion or buzzing sounds. The best way to apply them is as shown with a full loop going through the block before closing. Two are supplied in the event you are using two unbonded cables.

Remember that you can open the tray to stop playback - and then feed LIVE sound via the audio jack on the rear panel of the unit

Before going on the air - The most important step is choosing your channel. Operating without a license still obligates you to refrain from causing interference. And to do that - you must transmit on a frequency that is not in use locally.

Unless you live in a very remote part of the continental US, you will want to conduct a personal frequency search. Using a good quality DIGITALLY tuned FM receiver, start listening near the TOP of the FM band (107.1 Mhz is a good starting point for our USA models) You want to check each frequency while tuning slowly DOWN the band looking for, ideally, 5 or more unused frequencies, or very weak channels between two strong stations.

(If your FM tuner works in .1 mhz step - please understand that ONLY channels ending in .1 .3.5.7 and .9 are standard assigned frequencies, sure to found on ALL possible FM radio receivers) . If you are really lucky, you can find a bigger gap than the one we suggest. Conversely, if you are in a major metropolitan area, you may have to settle for a gap of just 3 stations. You want to be as much as possible, positioned in the CENTER of stations on either side of your chosen frequency.

Once you find a good channel, you usually never have to change it.

It is important that you make sure you are not going to set your transmitter to a channel that is already in use, since this can cause interference to other listeners within range.

In spite of the Part 15 license free status of the R100B, you are still bound by numerous aspects of Federal Communications law. The most important is to not knowingly cause interference, and to cease transmission promptly if notified, should you be inadvertently causing a problem with your transmission. And it's also the courteous way to share FM spectrum. You should also be aware that it is a Federal offense to adopt a call sign that was not issued to you by the FCC.

Are some channels better than others? YES most definitely. And the rule is this:

Rule 1. HIGHER frequencies are almost ALWAYS better.

Rule 2. Using MONO transmission increases range, and improves the receiver signal-to-noise ratio as a bonus.

The FM R100B's outstanding ability to tune every standard FM channel gives you all the choice you need!

Where should I set up my R100B? Your antenna can be anywhere within about 100 to 200 feet of the receivers you want to reach, depending on the sensitivity of the radio receiver. A "boombox" needs to be closer - a modern digital receiver can be much farther away and still get an excellent clean signal. In situations where you want to cover a bigger area, you can attach standard 75 ohm CATV coaxial cable and then place the actual antenna at the area you want to cover. In general for best coverage, the antenna should be at the center of the coverage area, as high above ground, and away from metal or concrete walls, as is reasonably possible.

If you need greater coverage for professional applications involving public listening assistance, governmental/institutional information broadcast, or temporary concert/event use, consider the FM 350-P/W models. These can produce enough power, when used with our 75 ohm "On Channel" antennas, to cover areas of from 1 to 15 Square Miles.

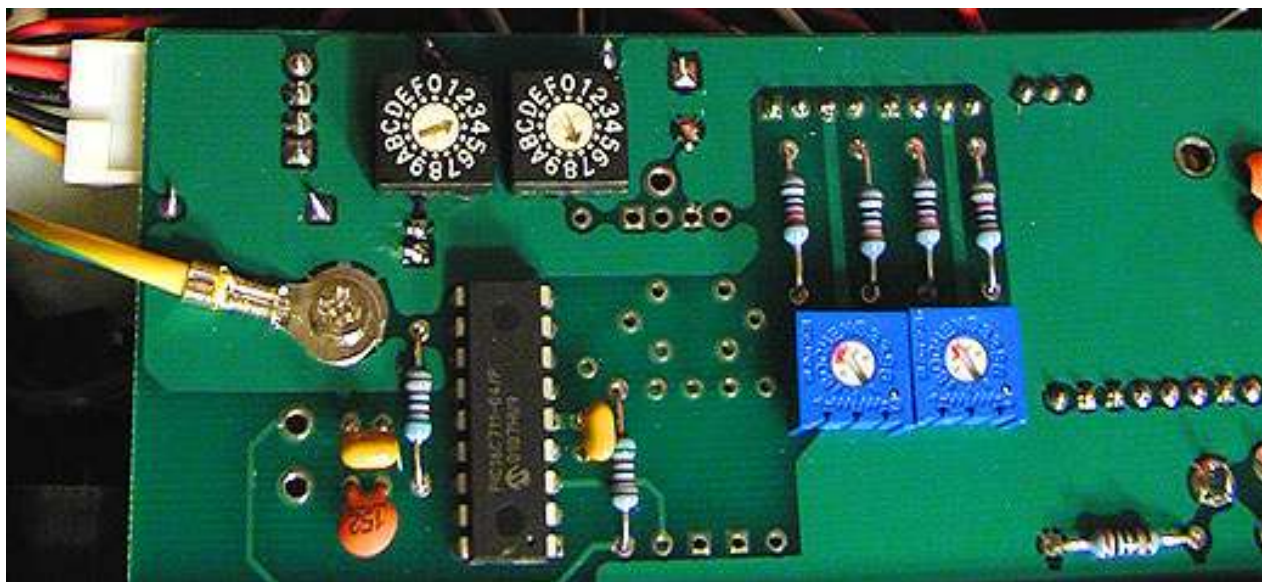
A special tip: For best coverage, straighten the antenna wire and align so that the wire is vertical.

Opening the case to change channel and adjust volume: Remember that all settings are viewed from the REAR of the unit - looking toward the front. Channel selection and any needed volume adjustment is done by removing the top cover. **FIRST UNPLUG THE UNIT.** Do not handle the unit or remove the covers while it is plugged into AC.

Open the case: Place the unit on a flat surface with the CD tray pointing toward you. Then side panels slide forward, and then can be removed. Next simply lift off the top cover. Note that there is a legend that indicates the FRONT of each slide lock panel.

It is important that you match the orientation of the panels exactly when closing the cover after adjustment.

Now turn the unit 180 degrees so that you are now looking at it from the back as shown in the picture. The two blue screw adjustments are the left and right volume, and the two black switches are the channel selector. Choose a channel and mode from the frequency table and set it while the unit is turned off.



NOTE that all units leave the factory set on HEX 37 - which is the code for 99.1MHz Stereo .

The modulation (volume) adjustments are normally ideal at 11 o'clock but may need to be turned clockwise for quiet recordings and turned down a bit if you recording has been highly processed by a recording studio.

A copy of the frequency look up table is on the next page - and also inside the unit on a bold metallic sticker.

Please do not plug in the transmitter until you have preset the channel you intend to use! First look up the channel code for the the channel you want to use, using the transmitter frequency table below.

There are two different codes for every FM channel, depending on whether or not you want stereo or mono operation. Remember - mono carries farther. The numbers in the table each correspond to FM US channels. To set your channel, find the frequency and decide if you want stereo or mono operation. Using the supplied 2.4 MM (or a .1" blade) screwdriver, rotate the code switches to the two digit HEX code for that frequency. Every transmitter leaves the factory set to 99.1 Mhz which is code number 37 in the chart. Here is a close up of the channel switches showing setting #37, as an example. Unused or invalid code settings set the frequencies indicated at the end of the last column .

Landmark FM Codes F = Frequency S = Stereo M = Mono

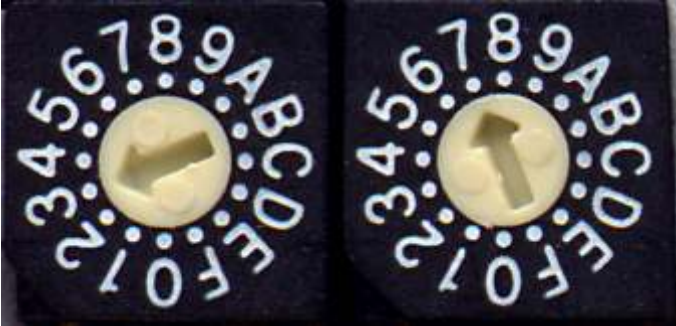
F • S • M	F • S • M	F • S • M	F • S • M
88.1 00 80	93.3 1A 9A	98.5 34 B4	103.7 4E CE
88.3 01 81	93.5 1B 9B	98.7 35 B5	103.9 4F CF
88.5 02 82	93.7 1C 9C	98.9 36 B6	104.1 50 D0
88.7 03 83	93.9 1D 9D	99.1 37 B7	104.3 51 D1
88.9 04 84	94.1 1E 9E	99.3 38 B8	104.5 52 D2
89.1 05 85	94.3 1F 9F	99.5 39 B9	104.7 53 D3
89.3 06 86	94.5 20 A0	99.7 3A BA	104.9 54 D4
89.5 07 87	94.7 21 A1	99.9 3B BB	105.1 55 D5
89.7 08 88	94.9 22 A2	100.1 3C BC	105.3 56 D6
89.9 09 89	95.1 23 A3	100.3 3D BD	105.5 57 D7
90.1 0A 8A	95.3 24 A4	100.5 3E BE	105.7 58 D8
90.3 0B 8B	95.5 25 A5	100.7 3F BF	105.9 59 D9
90.5 0C 8C	95.7 26 A6	100.9 40 C0	106.1 5A DA
90.7 0D 8D	95.9 27 A7	101.1 41 C1	106.3 5B DB
90.9 0E 8E	96.1 28 A8	101.3 42 C2	106.5 5C DC
91.1 0F 8F	96.3 29 A9	101.5 43 C3	106.7 5D DD
91.3 10 90	96.5 2A AA	101.7 44 C4	106.9 5E DE
91.5 11 91	96.7 2B AB	101.9 45 C5	107.1 5F DF
91.7 12 92	96.9 2C AC	102.1 46 C6	107.3 60 E0
91.9 13 93	97.1 2D AD	102.3 47 C7	107.5 61 E1
92.1 14 94	97.3 2E AE	102.5 48 C8	107.7 62 E2
92.3 15 95	97.5 2F AF	102.7 49 C9	107.9 63 E3
92.5 16 96	97.7 30 B0	102.9 4A CA	107.9 64 6F E4-EF
92.7 17 97	97.9 31 B1	103.1 4B CB	88.1 70-7F F0-FF
92.9 18 98	98.1 32 B2	103.3 4C CC	
93.1 19 99	98.3 33 B3	103.5 4D CD	

Setting Modulation

There are a pair of volume controls for adjusting modulation. For most channel settings and audio sources, the 12 o'clock or 50% setting is the right place to start. This is checked at the factory. However there is a slight variation in volume sensitivity that is based on the frequency you transmit on. When using channels at the low end of the band (appx 88.1 to 94. Mhz) you may want to increase the volume to as high as perhaps the 2 o'clock position for consistent loudness and quality sound. And likewise - on the higher channels , above 103 Mhz or so - you may want to slightly reduce the volume settings, to say 10 or 11 o'clock. Because of the superior clarity and frequency response of the transmitter, you do not need to compete with commercial broadcasters for sheer volume, and since you do not have the audio compression and other loudness enhancing tricks they do, you should avoid trying to sound TOO loud , as this can cause over modulation, distortion and interference. The easy way to tell if your modulation is too high is to watch out for "splashy" or over-emphasized "S" sounds and sounds of distorted audio on volume peaks. A great way to zero in on perfect modulation is to compare loudness with a prominent commercial broadcaster, and then set **your** modulation (transmitter volume) to be quieter.

While your transmitter performs well on all channels, each unit is factory adjusted for peak modulation quality for the range of 95 to 105 Mhz. On advice from the factory, any unit can be field adjusted to further surpass FM broadcast sonic standards for ANY channel that you choose from 92 mHz and above. NOTE that teh standard R100 repeater protects Public radio allocations below 92 mHz>Contact the factory if you require a unit capable of 88 to 92 mhz operation

Notice that the codes are Hexadecimal, meaning they use combinations of numbers and the letters A -F.



You can adjust modulation using the volume controls in individual Windows player applications, and over time, experience with the sources you are broadcasting will be your best guide to learning the best setting for master volume.