RITRON®
WIRELESS SOLUTIONS

User Manual

RIB-600Analog

Radio-To-Intercom Bridge™

Wireless PA Receiver Interface System

The RIB-600Analog Radio-To-Intercom Bridge receiver is designed to interface to an existing wired Public Address Intercom system and allow PA or intercom announcements using your Analog two-way radio. Each model can operate on VHF LMR business band, UHF LMR business band, or VHF MURS 2-way radios, and can work through radio repeaters.

- **1 Channel, Dual Band Receiver, VHF/UHF, Configurable Supports:**
  - **VHF and UHF Business Band**
  - **VHF MURS USA**
  - **VHF and UHF Business Band CANADA**
  - **UHF GMRS CANADA**
- **NOAA Weather Radio Alert**
- **Relay Trigger Feature for Optional Strobe Light**
- **Delay Message Playback Feature**
- **Repeat Message Playback Feature**
- **Switch Input w/ pre-recorded message**
- **Provides interconnection to the Public Address amplifier through a high impedance, unbalanced AUX input OR a 600Ω, balanced MIC input.**

MADE IN THE USA

Ritron Pub. 14500098 Rev. B 09/25

Call 800-USA-1-USA

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1 Getting Started

The RIB-600Analog receiver is designed for interface to an existing wired Public Address Intercom system to allow PA announcements using VHF or UHF business band, FRS, or MURS radios.

1.1 Overview

The RIB-600Analog receiver allows all the wired speakers in a PA/Intercom system to be immediately accessible via a 2-way radio/base station/ etc. The RIB-600Analog receiver can be connected to an existing wired system. An LM-Series and RIB-600Analog receiver system can be used side-by-side on the same frequency.

What is the difference between the LM-Series Loudmouth® receiver and the RIB-600Analog receiver?

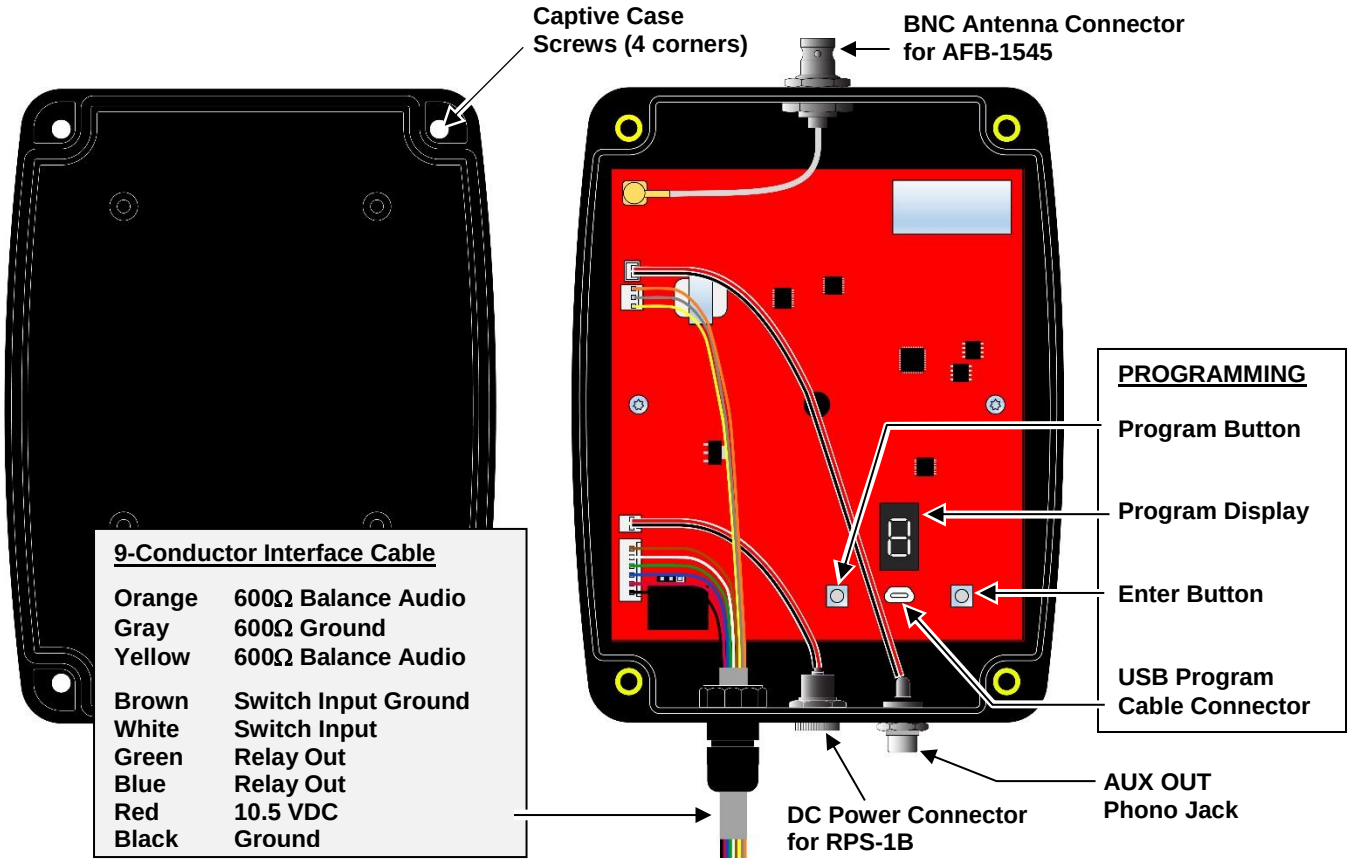
- The LM-Series Loudmouth® has a built-in audio amplifier. The built-in audio amplifier allows the LM-Series receiver by itself to drive up to 2 Ritron PA horn speakers. The LM-Series receiver and an included PA Horn speaker is what we call a stand-alone wireless PA system.
- The RIB-600Analog does not have a built-in PA amplifier. The RIB-600Analog receiver is designed to be connected to an existing PA/intercom system with its own PA amplifier and wired speakers.
- The RIB-600Analog Receiver does not include provisions for a back-up battery since it is merely a component of a larger system usually powered by AC and its own battery back-up system.

Features and Benefits

- The RIB-600Analog is designed to operate in both VHF (150-174 MHz) and UHF (450-470MHz) frequency bands. Provides compatibility with business band 2-way radios, License-FREE VHF business band radios (MURS), Family Radio Service and GMRS radios.
- Provides interconnection to the Public Address amplifier through a high impedance, unbalanced AUX input **OR** a 600Ω, balanced MIC input. Allows personnel to remain mobile while providing access via 2-way radio access to existing PA speakers located throughout the facility.
- “Record and Play” allows use of radios in close proximity to PA speakers without feedback. The RIB-600Analog records/buffers received messages up to 20 seconds in length, then plays them over the PA immediately after releasing the PTT button on the radio.
- Provides a relay switch closure whenever the RIB-600Analog receives a valid incoming message. This can be used to trigger or “key” the PA/Intercom amplifier.
- Provides a Switch Input that will play a pre-recorded voice message when a change in the Switch Input is detected.
- Programmable audio level control adjusts audio output level 5-99%. Allows custom adjustment for most applications.
- Easy “Plug and Play” installation.
- Selective signaling includes QC, DQC, DTMF, Selcall, 2-Tone to provide an added layer of access control to the PA system.
- Pre-announce tone (similar to existing PA systems) with programmable on/off and audio level.
- NOAA Weather Alert.
- Field or PC programmable to frequencies within the respective band (i.e. 150-174 MHz, 450-470 MHz).
- The RIB-600Analog is for interface only to an existing PA system, it cannot drive a loudspeaker by itself.
- The RIB-600Analog is for indoor use ONLY.

1.2 RIB-600Analog receiver assembly

The RIB-600Analog receiver is on any time power is applied. The receiver case must be opened to program the RIB-600Analog receiver.



1. Loosen the 4 screws in the front corners of the case using the T-25 Torx Security Bit included with the radio. These screws are retained to the housing with rubber O-rings, **DO NOT** remove the screws from the housing.
2. Separate the case front from the case back.
3. **Program the RIB-600Analog receiver** per the instructions in the Programming section of this manual, leaving the RPS-1B power supply connected to the radio. Press the **Enter** button twice before re-assembling the case to be sure the RIB-600Analog receiver is reset and ready for operation.
4. Carefully position the case front onto the case back. Secure the case halves by tightening the 4 captive screws in the front corners of the case.

Install the Mounting Brackets

Install the RK-RQX-Q-MB mounting brackets included with the product to the RIB-600Analog case back. Installation can be with the brackets on each side as shown, or with the brackets top and bottom.

1.3 Paging the RIB-600Analog receiver and PA speaker

The RIB-600Analog receiver can be paged with 2-way radios programmed for Quiet Call (CTCSS), Digital Quiet Call (DCS), 2-Tone Paging, DTMF, or Selcall paging formats. Each format offers a unique method of paging the RIB-600Analog receiver.

Refer to the Programming section of this manual for specific instructions on programming your RIB-600Analog to one of these selective signaling formats.

Ritron strongly recommends operation of the RIB-600Analog receiver with one of the following selective signaling formats enabled.

Paging the RIB-600Analog with Quiet Call (CTCSS) only:

- To page the receiver a user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel.
- Your 2-way radio must be programmed for a channel dedicated to RIB-600Analog operation. Only those radios programmed with the RIB-600Analog channel will be able to access the receiver.
- The 2-way radio's RIB-600Analog channel and the RIB-600Analog receiver must be programmed for the same QC code. All Ritron radios offer 50 different field-programmable QC codes from which to choose.

Paging the RIB-600Analog with Digital Quiet Call (DCS) only:

- To page the receiver a user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel.
- Your 2-way radio must be programmed for a channel dedicated to RIB-600Analog operation. Only those radios programmed with the RIB-600Analog channel will be able to access the receiver.
- The 2-way radio's RIB-600Analog channel and the RIB-600Analog receiver must be programmed for the same DQC code. All Ritron radios offer 104 different field-programmable DQC codes from which to choose.

Paging the RIB-600Analog with 2-Tone Paging:

- To page the RIB-600Analog the 2-way radio must first send the correct 2-Tone Paging code. Once access to the receiver is accomplished, the user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel. After a period of inactivity the RIB-600Analog is automatically reset, and will then require the correct 2-Tone Paging code to re-gain access.
- Only 2-way radios programmed to send the correct 2-Tone code on the RIB-600Analog channel can access the RIB-600Analog receiver. However, once access is gained, any 2-way radio that operates on the RIB-600Analog channel can access the receiver up until the time that the RIB-600Analog has automatically reset.
- Can be used in conjunction with QC or DQC for added security. The 2-way radio and the RIB-600Analog receiver must be programmed for the same QC or DQC code.

Paging the RIB-600Analog with DTMF or Selcall:

- To page the RIB-600Analog the 2-way radio must first send the correct 3-7 digit DTMF or Selcall code. Once access to the receiver is accomplished, the user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel. After a period of inactivity the RIB-600Analog is automatically reset, and will require the DTMF or Selcall code to re-gain access.
- Only 2-way radios programmed to send the correct 3-7 digit DTMF or Selcall code on the RIB-600Analog channel can access the RIB-600Analog receiver.
- Can be used in conjunction with QC or DQC for added security. The 2-way radio and the RIB-600Analog receiver must be programmed for the same QC or DQC code.

Ritron recommends the use of a dedicated channel frequency for RIB-600Analog operation.

When operating on unique frequencies dedicated to RIB-600Analog operation:

- Your 2-way radios must be programmed for a channel dedicated to RIB-600Analog operation.
- Receiver operation is limited to radios programmed with the dedicated RIB-600Analog channel.
- The use of 2-tone, DTMF, or Selcall paging to address the RIB-600Analog is not required, but can still be used if additional access security is desired.
- Without 2-tone, DTMF, or Selcall paging the receiver can be addressed by simply selecting the RIB-600Analog channel on your 2-way radio and pressing the PTT button to talk.
- You may need to license additional frequencies for your 2-way radios (not necessary when programmed for MURS frequencies, see Table F in the Programming section).

When operating on your normal 2-way communication frequencies:

- Messages broadcast on the RIB-600Analog are also heard on your 2-way radios.
- Receiver messages are not possible when the channel is being used for 2-way communications.
- The use of 2-tone, DTMF, or Selcall paging is required to address the RIB-600Analog, otherwise all 2-way communication is heard by the receiver.
- Any user on your 2-way channel can broadcast through the receiver once it is activated, even if their 2-way radio is not programmed with the correct 2-tone, DTMF or Selcall paging code.
- There is no need to license additional frequencies.

1.4 Compatibility with other RITRON model radios

The Ritron model RIB-600Analog receiver can operate on both VHF and UHF business band frequencies. RIB-600Analog can be accessed with radios programmed for Quiet Call (CTCSS), Digital Quiet Call (DCS), 2-Tone Paging, DTMF, or Selcall paging formats. The following chart can be used to determine compatibility with existing Ritron radios.

VHF models

Model	Type	QC	DQC	2-Tone	Selcall	DTMF
JMX-141D	Portable	√				
JMX-144D	Portable	√	√	√		
JMX-146D	Portable	√				
JBS-146D	Base	√	√	√		
JBS-147D	Base	√	√	√	√	√
JBS-147M	Base	√	√	√	√	√
* JV-110	Portable	√	√	√		
RPM-160	Mobile	√	√	√	√	
RQX-111	Callbox	√	√		√	√
RQX-117	Callbox	√	√		√	√
RQX-151	Callbox	√	√			
RQX-156	Callbox	√	√		√	
RQX-157	Callbox	√	√		√	
RQX-127-XT	Callbox	√	√		√	√
RQX-127M-XT	Callbox	√	√		√	√
PT-150	Portable	√	√	√	√	√
PT-150M	Portable	√	√	√	√	√
NT-174	Portable	√	√	√	√	√
** NT-174M	Portable	√	√	√	√	√

UHF models

Model	Type	QC	DQC	2-Tone	Selcall	DTMF
JMX-441D	Portable	√				
JMX-444D	Portable	√	√	√		
JMX-446D	Portable	√	√	√		
JBS-446D	Base	√	√	√		
JBS-447D	Base	√	√	√	√	√
* JU-410	Portable	√	√	√		
RPM-460	Mobile	√	√	√	√	
RQX-411	Callbox	√	√		√	√
RQX-417	Callbox	√	√		√	√
RQX-451	Callbox	√	√			
RQX-456	Callbox	√	√		√	
RQX-457	Callbox	√	√		√	
RQX-427-XT	Callbox	√	√		√	√
PT-450	Portable	√	√	√	√	√
PT-450-S	Portable	√	√	√	√	√
NT-470	Portable	√	√	√	√	√

* 2-Tone paging available with Rev 6.0 or greater Firmware Only. See label inside radio battery compartment for firmware revision.

** Pending

1.5 Operating Conditions and Limitations

FCC Part 15

The Ritron Model RIB-600Analog receiver has been tested according to FCC requirements, and found compliant with FCC Part 15 Subpart B Unintentional Radiator. Changes or modifications not expressly approved by Ritron, Inc. could void the user's authority to operate the equipment.

Supplier's Declaration of Conformity
47 CFR § 2.1077 Compliance Information

Unique Identifier: Ritron Model RIB-600Analog

Responsible Party – U.S. Manufacturer

Ritron, Inc.
505 W. Carmel Dr.
Carmel, IN 46032
(317) 846-1201
www.ritron.com

FCC Compliance Statement

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, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

CAN RSS-Gen/CNR-Gen

Ritron model RIB-600Analog is stand-alone receiver that operates in the bands 150-174MHz and 450-470MHz. The RIB-600Analog complies with the limits for receiver–spurious emissions and AC power-line emissions set out in RSS-GEN section 7, therefore equipment certification is not required. Each unit shall bear the label “CAN RSS-Gen/CNR-Gen”.

This device contains a license-exempt receiver that complies with Innovation, Science and Economic Development Canada’s license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

2013 FCC Narrowband Mandate

On January 1, 2013, pursuant to the FCC Narrowband mandate, you will no longer be allowed to operate wideband transmitters (25 kHz) in the frequency bands from 150 MHz to 512 MHz.

Ritron began manufacturing narrowband compatible radios starting in December 2012. At that time, customer orders were filled with radios manufactured for FCC narrowband compatibility. Specifically, table frequencies were converted to narrowband. These radios will be clearly marked as “FCC Narrowband Compatible”.

Since Part 15 receivers are not subject to the narrowband mandate, you will still be able to set the RIB-600Analog for wideband operation via field programming (See Section 3.6 – Field Program Advanced Feature Codes), or by using the PC Programmer.

For a complete list of all Ritron radios capable of narrowband operation; a Ritron FAQ on the subject, and various links on the FCC website dealing with Narrowbanding go to:

www.ritron.com/narrowband

If you have any questions contact us at 1-800-872-1872.

2 Installation

Proper installation of the RIB-600Analog receiver is critical to the performance and overall satisfaction with your system. With careful consideration and planning the RIB-600Analog can receive a radio signal from up to a mile away and broadcast it over your wired PA system. This section will help you plan an installation that is best suited for your environment.

2.1 Radio coverage site survey

Ritron recommends that you do a "radio coverage site survey" before permanently installing the RIB-600Analog receiver.

This will require 2 people and 2 charged portable radios.

Every building is different, and therefore, no "single" rule applies when it comes to where to install the RIB-600Analog receiver and antenna for optimal coverage. Ideally, you would like to install the RIB-600Analog receiver in close proximity to the wired PA amplifier for easy installation. Begin your site survey by locating person #1 at the wired PA amplifier to see if a simple installation is possible. If that is not possible, an alternative site must be found where:

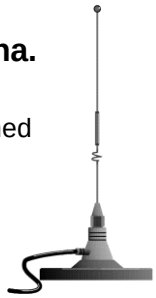
1. AC power is available for the RIB-600Analog receiver.
2. A shielded, twisted pair cable can be routed from the RIB-600Analog receiver to the PA amplifier.

In general, the antenna of the RIB-600Analog receiver is the "pivot" point for all communication. We're trying to optimize the location of the antenna in order to reduce the obstructions and distance the radio signal must travel in order to get from any point in the desired coverage area to the antenna connected to the RIB-600Analog receiver. By attempting to install the ANTENNA for the RIB-600Analog receiver "in the center" of the desired coverage area, we reduce the distance the radio signal must travel by ½. If you're attempting to cover a high rise building (e.g. 15 floors), go to a location half way up (e.g. 7th floor), and in the center of the building.

Radio range can be extended with the use of an external antenna.

The antenna can be installed at a higher elevation than is possible with the attached antenna.

The Ritron RAM-1545 VHF/UHF magnet-mount antenna has a 25 ft. cable to allow optimum antenna location.



Preparing for the radio coverage site survey:

1. Charge the radio batteries for at least 12 hours.
2. When charged, make sure both radios are set to the same channel.

Note: If you do not intend to route RIB-600Analog communications through a repeater, the portable radios should be set to a channel programmed for direct radio-to-radio communication, NOT through the repeater.

Conducting the radio coverage site survey:

1. Person #1 will take one portable radio and go to the location you would "most likely" install the antenna for the RIB-600Analog receiver (see FIG-2). This person will "simulate" the type of coverage you can expect, IF, the antenna for the RIB-600Analog receiver was installed in this location. If necessary, position this person on a ladder to more accurately mimic the height you intend to mount the antenna.

   BE ADVISED – you may have to try several heights and/or locations before settling on the best location.

2. While person #1 remains stationary, person #2 will take the second radio and "walk the site". While "walking the site" person #2 must attempt to maintain radio contact periodically with person #1. This survey process will reveal whether or not radio coverage is acceptable IF you install the antenna at the person #1 location. Generally speaking, coverage will be slightly better when the RIB-600Analog receiver and antenna are permanently installed.

3. If coverage is inadequate, Person #1 will need to relocate to a new location and repeat the process until range and coverage are optimized.

Hints: Typically, the higher the antenna the better but, NOT always. Every site is different. Thick, reinforced concrete, steel walls and vertical fire panels in ceilings can work to block the penetration of radio signals creating dead spots. You may want to gradually lower the height of the antenna and/or its location and repeat your site survey to see if coverage improves. It is best to change one variable at a time e.g. antenna height, location and then repeat the process.

4. For sites where coverage is desired in multiple buildings, such as an office complex, an external mounted antenna may be required. Before considering an external installation of the antenna, a site survey should be attempted with person #1 positioned inside a centrally located building at the highest possible elevation (see FIG-3). Person #2 will "walk the site", communicating with person #1 from inside all buildings and at all outside areas where radio coverage is desired.

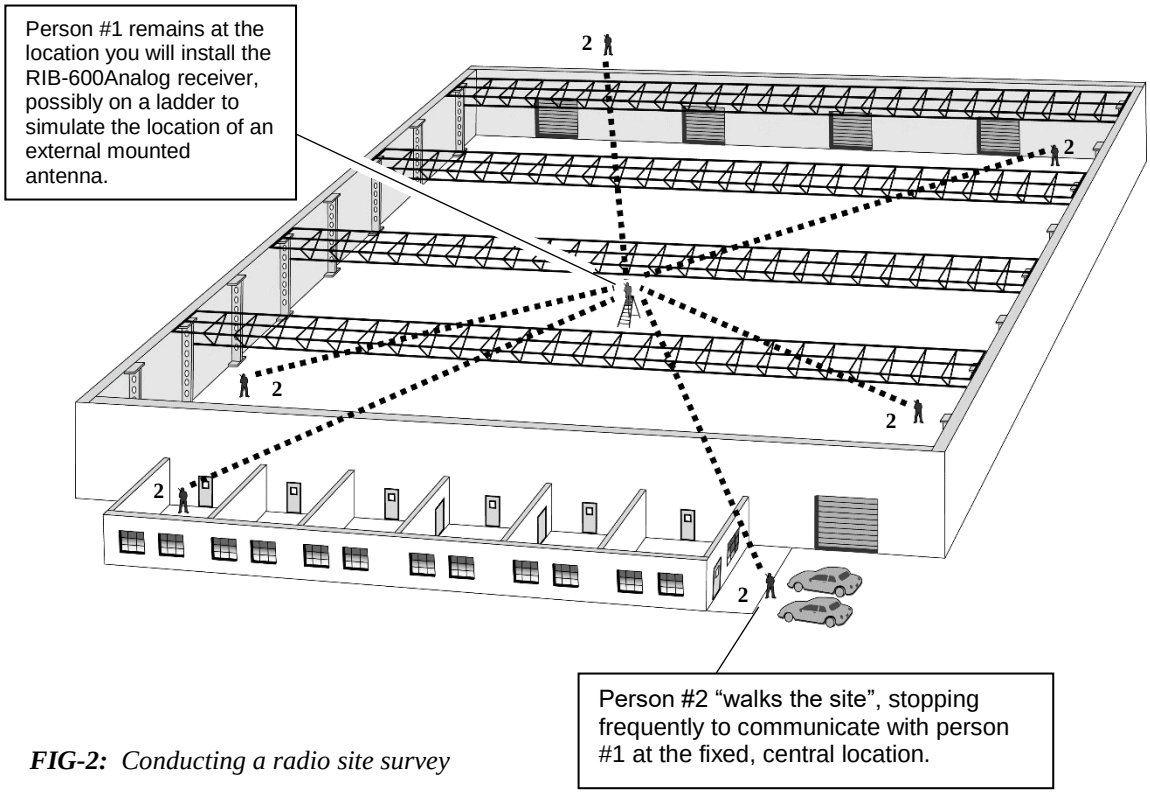
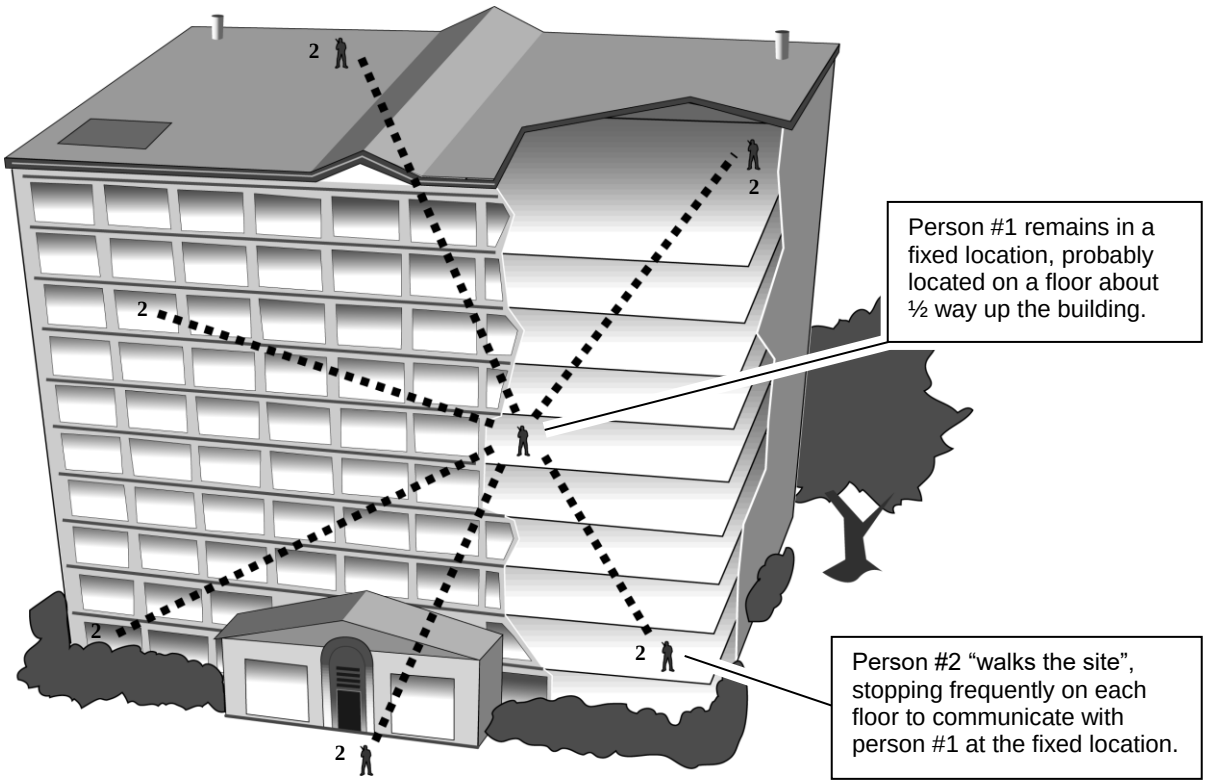


FIG-2: *Conducting a radio site survey*



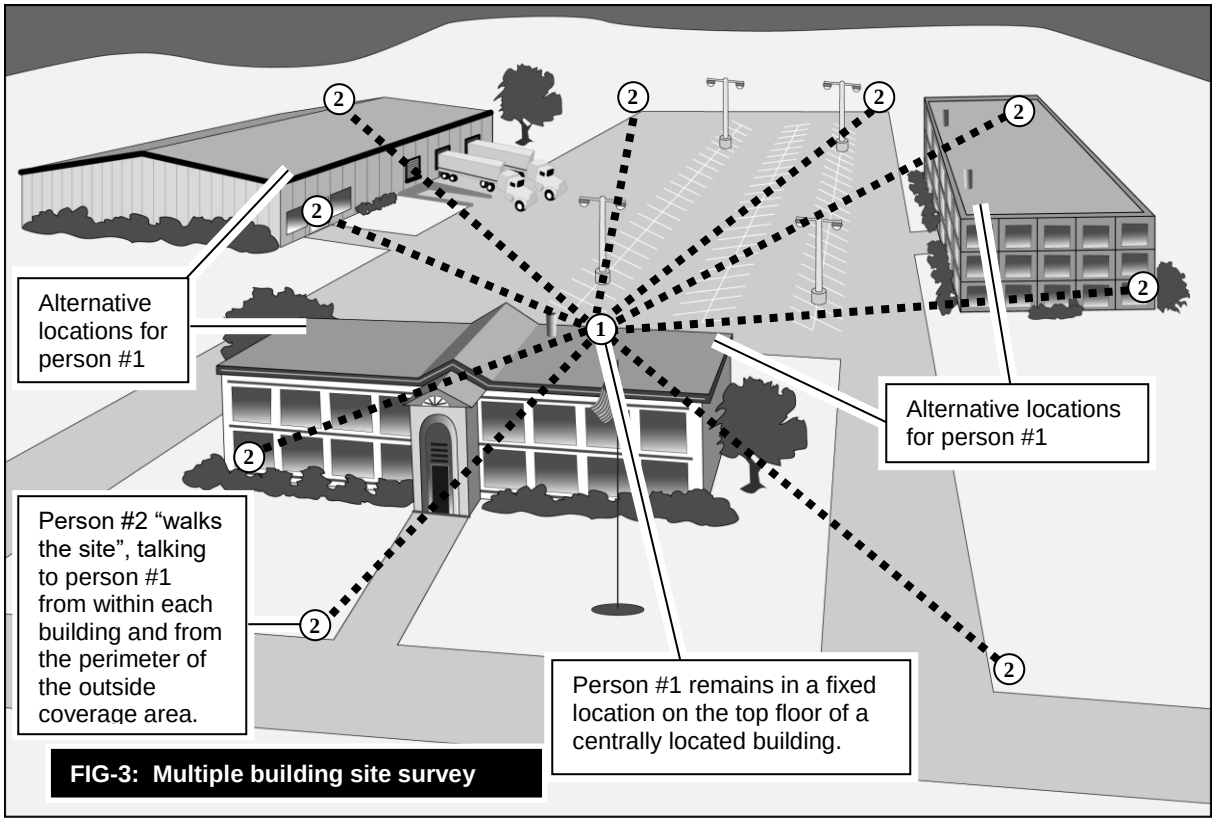


FIG-3: Multiple building site survey

Installing a Magnetic Mount Antenna for the RIB-600Analog Receiver

A magnetic mount antenna should be installed in a location, which is at, or as close as possible to the best location as determined by the site survey. The antenna's magnetic base must be attached to a piece of metal (i.e. steel or iron). The antenna comes with 12 feet of attached co-axial cable* so you can remotely locate the antenna up to 12 feet away from the RIB-600Analog receiver. The antenna cable MUST run directly away from the RIB-600Analog receiver.

* Do NOT attempt to cut, shorten or splice this cable in any way.

For best performance the magnetic mount antenna must be:

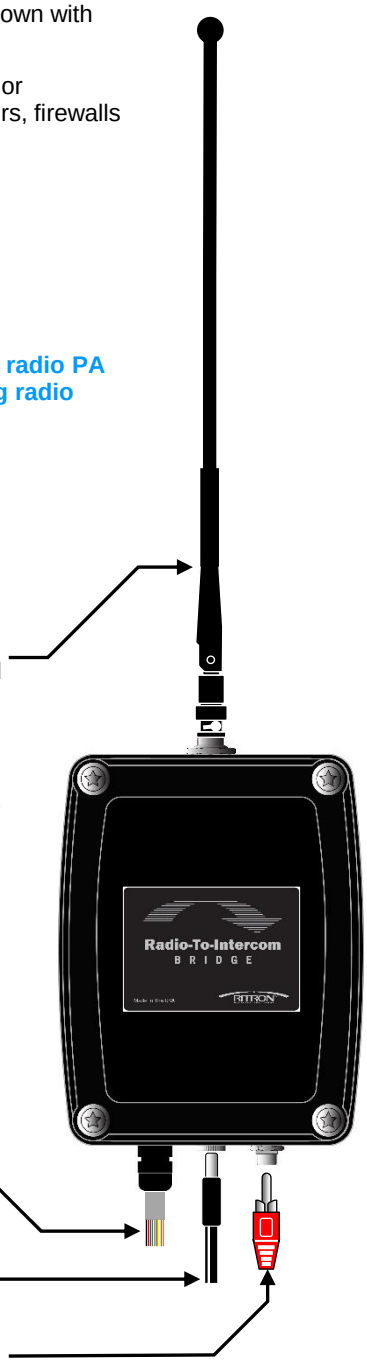
- Mounted on a metal surface e.g. steel or iron. This metal mounting surface MUST be at least 2 feet square with the antenna positioned in the center. The antenna's internal magnet will secure it to the surface. Do NOT place adhesives between the bottom of the antenna mounting surface and the metal mounting surface itself.
- Orient the antenna so that the element itself is vertical. The antenna can be mounted upside down with no effect on performance. Just make sure the antenna element is vertical.
- Mounted away from other metal objects, walls, and structures. Avoid surrounding the antenna or "shielding" it by locating it too closely to metal walls, inside an elevator shaft, in recessed girders, firewalls or ceilings.

2.2 RIB-600Analog radio receiver installation

Installation of the RIB-600Analg receiver is critical to the effective radio coverage of the radio PA system. Without proper installation the maximum possible distance between the calling radio and the RIB-600Analog receiver will be significantly reduced.

Guidelines for installing the RIB-600Analog receiver:

- The radio receiver box must be located inside, out of the elements.
- For best radio coverage the RIB-600Analog receiver should be installed in a central location and as high up as possible.
- For maximum radio coverage the antenna should be in a vertical orientation and should not be touching or surrounded by large metal objects. The receiver box can be mounted horizontally as long as the antenna is in a vertical position.
- Do not install the RIB-600Analog receiver in a high traffic location with the possibility that the receiver box would be struck, become unplugged, or disconnected from the PA amplifier.

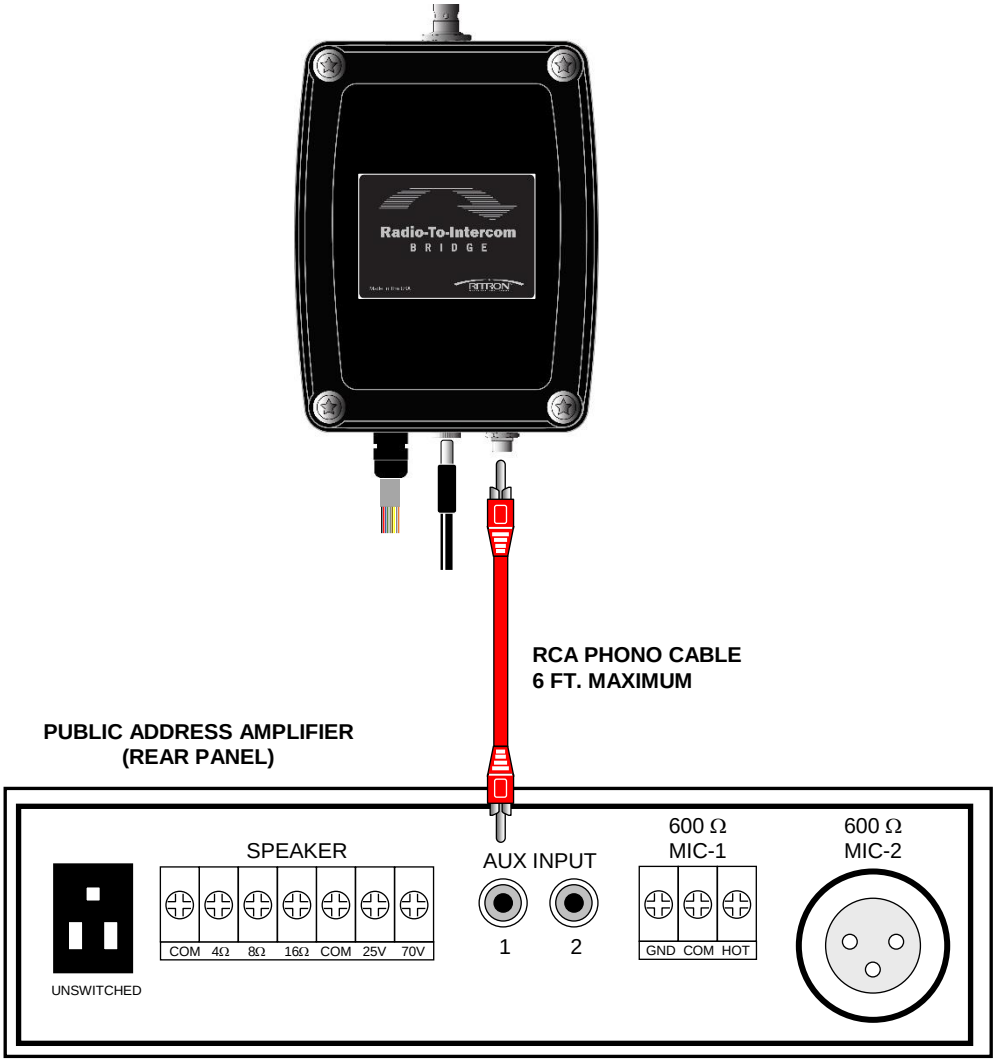


- Relay and Switch Input connections are made via the 9-Conductor Interface cable.
- Connections to the PA amplifier 600Ω balanced input are made via the 9-Conductor Interface cable.
- Be sure there is a convenient source of 110VAC power for the RPS-1B power cube.
- Do not wind, loop or otherwise allow the power cord from the RPS-1B power cube to contact the antenna. The power cord should be routed away from the antenna.
- If connection to the PA amplifier is via it's AUX IN, the RIB-600Analog receiver must be within 6 ft. of the PA amplifier.

2.3 RIB-600Analog AUX IN installation

The RIB-600Analog receiver can connect to the AUX INPUT of a public address amplifier if the receiver is installed in close proximity to the PA amplifier.

- The RCA phono cable required for interconnection should be no longer than 6 feet. Installations requiring an RIB-600Analog receiver location greater than 6 feet from the PA amplifier must use the 600Ω balanced output.
- When using the PA amplifier AUX INPUT it is important to remember that received messages from the RIB-600Analog receiver will be treated exactly the same way any other audio device connected to the AUX INPUT. On many PA amplifiers the AUX INPUT audio is automatically muted whenever audio is present on the MIC INPUT. Check the owner's manual for the PA amplifier to determine AUX INPUT operation and the effect it will have on RIB-600Analog operation.

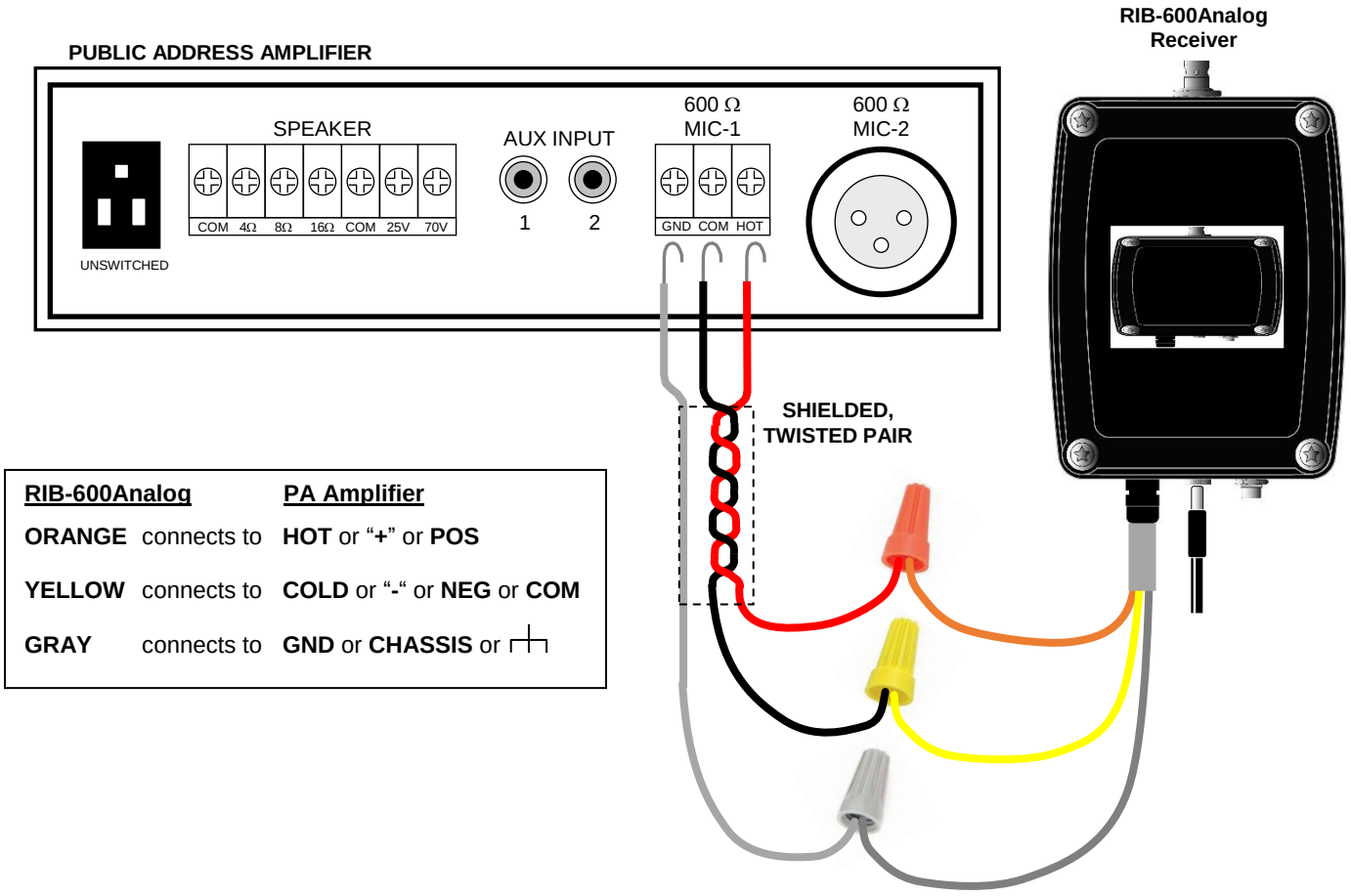


2.4 RIB-600Analog 600Ω BALANCED installation

The RIB-600Analog receiver can be connected to the 600Ω balanced MIC INPUT of a public address amplifier when the receiver is not located close to the PA amplifier.

- When an RIB-600Analog radio message is received, the RIB-600Analog receiver will send the audio to the 600Ω microphone input of the PA amplifier.
- A typical balanced cable contains two identical wires, which are twisted together and then wrapped with a third conductor (foil or braid) that acts as a shield. The wires are twisted together, to reduce interference from electromagnetic induction. Twisting makes the loop area between the conductors as small as possible, and ensures that a magnetic field that passes equally through adjacent loops will induce equal but opposite currents, which cancel out. The separate shield of a balanced audio connection also yields a noise rejection advantage over an unbalanced two-conductor arrangement (such as AUX IN) where the shield must also act as the signal return wire. Any noise currents induced into a balanced audio shield will not therefore be directly modulated onto the signal, whereas in a two-conductor system they will be. This also prevents ground loop problems, by separating the shield/chassis from signal ground.
- Connections to the PA amplifier are through the Orange, Yellow, and Gray wires from the RIB-600Analog Interface Cable per the table below. Connections between the shielded, twisted pair and the RIB-600Analog Interface Cable can be made using 22AWG wire nuts.

NOTE: To minimize noise it is often necessary to connect the ground shield at only one end of the cable.



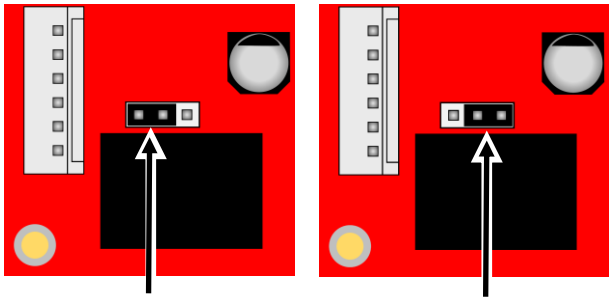
RIB-600Analog		PA Amplifier
ORANGE	connects to	**HOT** or "**+**" or **POS**
YELLOW	connects to	**COLD** or "**-**" or **NEG** or **COM**
GRAY	connects to	**GND** or **CHASSIS** or ⏚

2.5 RIB-600Analog RELAY installation

The RIB-600Analog receiver can be set to provide a relay switch closure any time a valid message is received.

- RELAY connections are made through the RIB-600Analog Interface Cable.
- RELAY connections 1 and 2 provide a normally-open SPST switch. When an RIB-600Analog radio message is received, the RELAY switch is closed with connections 1 and 2 shorted.
- RELAY switch connections 1 and 2 can be used to provide a "Priority", "Override" or "Emergency" signal to the PA amplifier.
- RELAY switch connections are through the **Green** and **Blue** wires from the RIB-600Analog Interface cable. The **Red** and **Black** wires are also used for specific relay applications as detailed below.
- The RIB-600Analog receiver can be set so RELAY switch connections 1 and 2 are normally-closed, and will open when an RIB-600Analog radio message is received. Move the Relay Polarity Jumper as shown at right.

RIB-600Analog PC board lower left corner



Relay Polarity jumper in normally-open position

Relay Polarity jumper in normally-closed position

With the Relay polarity jumper in the normally-open position, use the **Green** wire and **Blue** wire for a normally-open switch that closes when the RIB-600Analog receives a message.

Relay 1 (Green)	Switch closes when radio message is received
Relay 2 (Blue)	Switch closes when radio message is received
10.5 VDC (Red)	No connection
Ground (Black)	No connection

With the Relay polarity jumper in the normally-open position, tie the **Blue** and **Black** wires together, then use the **Green** wire for a switch closure to ground when the RIB-600Analog receives a message.

Relay 1 (Green)	Switch closure to ground when radio message is received
Relay 2 (Blue)	Tie **Black** wire and **Blue** wire together
Ground (Black)	Tie **Black** wire and **Blue** wire together
10.5 VDC (Red)	No connection

With the Relay polarity jumper in the normally-open position, tie the **Blue** and **Red** wires together, then use the **Green** wire and **Black** wire to apply 10.5VDC from the RIB-600Analog to a Strobe Light when the RIB-600Analog receives a message.

Relay 1 (Green)	Switch applies 10.5 VDC when radio message is received
Relay 2 (Blue)	Tie **Black** wire and **Blue** wire together
10.5 VDC (Red)	Tie **Black** wire and **Blue** wire together
Ground (Black)	Ground connection to Strobe, or device to be powered

With the Relay polarity jumper in the normally-open position, power a Strobe Light with the Red wire and Black wire, tie the **Blue** and **Black** wires together, then use the **Green** wire to activate the Strobe Light with a switch closure to ground when the RIB-600Analog receives a message.

Relay 1 (Green)	Switch closure to ground activates Strobe when radio message is received
Relay 2 (Blue)	Tie **Black** wire and **Blue** wire together
Ground (Black)	Tie **Black** wire to **Blue** wire and to Strobe ground connection
10.5 VDC (Red)	Positive supply connection for the Strobe, or device to be powered

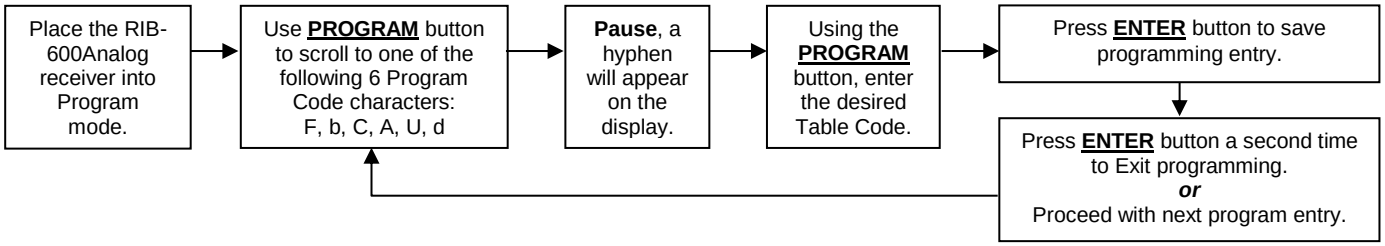
3 Programming

For some installations the RIB-600Analog can be programmed in the field without the need for the Ritron PC Programmer LM-PCPS (LM-PCPK-USB kit with cable). Field programming is accomplished in 3 easy steps. First, the radio frequency and tone codes are entered. Second, the selective signaling code is entered (if used). Third, the RIB-600Analog options and audio level setting are entered.

3.1 PC Programming Software LM-PCPS

While most RIB-600Analog programming can be accomplished via Field Programming, the Ritron PC Programming Software (LM-PCPS) can also be used. The PC Programmer allows viewing of all programmed attributes at once. It also permits you to save a programming profile you can use to easily program other RIB-600Analog radios to the same settings. Ritron PC Programming kit LM-PCPK-USB includes the LM-PCPS programming software and a USB Programming cable.

3.2 RIB-600Analog Field Programming Overview



Program Codes	Table Codes
F	Readout Frequency programming ***or*** Enter a Frequency code from **TABLE F: PROGRAMMABLE FREQUENCY TABLE** ***or*** Enter any valid frequency from 150-174 MHz, or from 450-470 MHz
b	Readout QC or DQC Tone programming ***or*** Enter a 2-digit Quiet Call code from **TABLE b: PROGRAMMABLE QC TONE TABLE** ***or*** Enter a 3-digit Digital Quiet Call code from **TABLE b: PROGRAMMABLE DIGITAL DQC TONE TABLE**
C	Readout 2-Tone, Selcall or DTMF decode programming ***or*** Enter a 2-digit, 2-Tone Paging code from **TABLE C: PROGRAMMABLE 2-TONE, DTMF AND SELCALL CODES** ***or*** Enter **1** plus any 3–7 digit DTMF Code ***or*** Enter **2** plus any 3–7 digit Selcall Code
A	Enter a 2-digit or 3-digit RIB-600Analog Feature code from **TABLE A: ADVANCED FEATURE CODES** to: • Enable or disable a Pre-Announce Tone • Set a Record and Play delay time • Set to repeat a Record and Play message • Enable or disable Weather Alert feature • Set the RIB-600Analog for wideband operation • Enable or disable Relay operation • Set a minimum Relay activation time • Reset RIB-600Analog to Factory default programming • Set the RIB-600Analog to play a pre-recoded Switch ON and/or Switch OFF message on Switch Input detection
U	Readout the programmed Audio level ***or*** Enter the desired Audio Level as a 2-digit number from 05-99%.
d	Readout the programmed NOAA Weather Frequency code ***or*** Enter the 1-digit NOAA Weather Frequency code from **TABLE d: NOAA WEATHER FREQUENCY CODES** **NOTE:** This only programs the NOAA weather frequency, the Weather Alert feature must be enabled using the code in **TABLE A: ADVANCED FEATURE CODES**

3.3 Readout and Field Program Frequency Codes

To match other radios, the owner can select Frequency Codes from Table F or can program the radio frequency directly. Table F is divided into sections 2-6 to correspond with the frequency tables of other Ritron radios. Table frequency codes set both frequency and bandwidth.

Section	Ritron Table
2	VHF Business Band and VHF MURS for USA
3	CANADA GMRS
4	UHF Business Band for USA
5	UHF Business Band for CANADA
6	VHF Business band for CANADA

For direct frequency entry a section number of 1 is entered, followed by the 8-digit frequency. The RIB-600Analog can be programmed for frequencies of 150-174MHz and 450-470MHz. Direct frequency entry sets the bandwidth for narrowband operation.

In the following examples, the RIB-600Analog is programmed to operate on the Section 4 "Silver Star" frequency of 467.8500 MHz.

To enter a frequency code from the Programmable Frequency Table:

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1. Refer to Table F - Section 4 to determine the 2 or 3-digit frequency code and write it down.

2. **Place the radio into Program / Readout Mode** by pressing and holding the **PROGRAM** button. A “P” will appear on the display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.

3. Click the **PROGRAM** button until the program display shows the Program Code “F”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the Frequency code from Table F.

4. Enter the desired Section number from Table F by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

FREQUENCY CODE

5. Enter the 1st digit of the frequency code by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

6. Enter the 2nd digit of the frequency code by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

7. If necessary, enter the 3rd digit of the frequency code by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

8. Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.

NOTE: If you attempt to save an incorrect code, an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.

9. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

To enter the frequency directly:

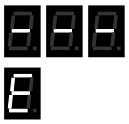
1. With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code “F”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the Frequency programming.

2. Enter Section number 1 by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

3. Enter the 8-digit frequency by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

FREQUENCY

NOTE: Trailing zeros (0) do not have to be entered.



4. Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.

   NOTE: If you attempt to save an incorrect code an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.

5. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

To readout frequency programming:

1. With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code “F”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to readout the Frequency programming.

2. Press and release the **ENTER** button. The display will show the Section number of Table F, followed by the 2 or 3-digit frequency code. Each digit is separated by a hyphen.

   SECTION FREQUENCY CODE

   If the radio frequency has been entered without using the Programmable Frequency Table, the display will show Section number 1 followed by the 8-digit frequency.

   SECTION FREQUENCY (Example 467.8500MHz)

3. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

Table F - Programmable Frequency Table

Section 2: VHF Business Band

Section-Code	Frequency	Color Dot	BW
2-03	151.6250	Red Dot	12.5 †
2-04	151.9550	Purple Dot	12.5 †
2-05	151.9250		12.5 †
2-06	154.5400		12.5 †
2-07	154.5150		12.5 †
2-08	154.6550		12.5 †
2-09	151.6850		12.5 †
2-10	151.7150		12.5 †
2-11	151.7750		12.5 †
2-12	151.8050		12.5 †
2-13	151.8350		12.5 †
2-14	151.8950		12.5 †
2-15	154.4900		12.5 †
2-16	151.6550		12.5 †
2-17	151.7450		12.5 †
2-18	151.8650		12.5 †
2-24	151.7000		12.5
2-25	151.7600		12.5
2-26	152.7000		12.5 †
2-27	152.8850		12.5
2-28	152.9150		12.5
2-29	152.9450		12.5
2-30	151.5125		12.5
2-31	154.5275		12.5
2-32	153.0050		12.5
2-33	158.4000		12.5
2-34	158.4075		12.5

Section 2: MURS

Section-Code	Frequency	Color Dot	BW
2-01	154.600	Green Dot	25.0
2-02	154.570	Blue Dot	25.0
2-19	151.820	MURS	12.5
2-20	151.880	MURS	12.5
2-21	151.940	MURS	12.5
2-22	154.600	MURS	12.5
2-23	154.570	MURS	12.5

Section 3: CANADA-GMRS/FRS

Section-Code	Frequency	Color Dot	BW
3-01	462.5625	GMRS/FRS	12.5
3-02	462.5875	GMRS/FRS	12.5
3-03	462.6125	GMRS/FRS	12.5
3-04	462.6375	GMRS/FRS	12.5
3-05	462.6625	GMRS/FRS	12.5
3-06	462.6875	GMRS/FRS	12.5
3-07	462.7125	GMRS/FRS	12.5
3-08	467.5625	FRS	12.5
3-09	467.5875	FRS	12.5
3-10	467.6125	FRS	12.5
3-11	467.6375	FRS	12.5
3-12	467.6625	FRS	12.5
3-13	467.6875	FRS	12.5
3-14	467.7125	FRS	12.5
3-15	462.5500	GMRS	12.5
3-16	462.5750	GMRS	12.5
3-17	462.6000	GMRS	12.5
3-18	462.6250	GMRS	12.5
3-19	462.6500	GMRS	12.5
3-20	462.6750	GMRS	12.5
3-21	462.7000	GMRS	12.5
3-22	462.7250	GMRS	12.5

Section 4: UHF Business Band

Section-Code	Frequency	Color Dot	BW
4-09	469.2625		12.5 †
4-10	462.5750	White Dot	12.5 †
4-11	462.6250	Black Dot	12.5 †
4-12	462.6750	Orange Dot	12.5 †
4-13	464.3250		12.5 †
4-14	464.8250		12.5 †
4-15	469.5000		12.5 †
4-16	469.5500		12.5 †
4-17	463.2625		12.5 †
4-18	464.9125		12.5 †
4-19	464.6000		12.5 †
4-20	464.7000		12.5 †
4-21	462.7250		12.5 †
4-22	464.5000	Brown Dot	12.5
4-23	464.5500	Yellow Dot	12.5
4-24	467.7625	J	12.5
4-25	467.8125	K	12.5
4-26	467.8500	Silver Star	12.5
4-27	467.8750	Gold Star	12.5
4-28	467.9000	Red Star	12.5
4-29	467.9250	Blue Star	12.5
4-30	461.0375		12.5
4-31	461.0625		12.5
4-32	461.0875		12.5
4-33	461.1125		12.5
4-34	461.1375		12.5
4-35	461.1625		12.5
4-36	461.1875		12.5
4-37	461.2125		12.5
4-38	461.2375		12.5
4-39	461.2625		12.5
4-40	461.2875		12.5
4-41	461.3125		12.5
4-42	461.3375		12.5
4-43	461.3625		12.5
4-44	462.7625		12.5
4-45	462.7875		12.5
4-46	462.8125		12.5
4-47	462.8375		12.5
4-48	462.8625		12.5
4-49	462.8875		12.5
4-50	462.9125		12.5
4-51	464.4875		12.5
4-52	464.5125		12.5
4-53	464.5375		12.5
4-54	464.5625		12.5
4-55	466.0375		12.5
4-56	466.0625		12.5
4-57	466.0875		12.5
4-58	466.1125		12.5
4-59	466.1375		12.5
4-60	466.1625		12.5
4-61	466.1875		12.5
4-62	466.2125		12.5
4-63	466.2375		12.5
4-64	466.2625		12.5
4-65	466.2875		12.5
4-66	466.3125		12.5
4-67	466.3375		12.5
4-68	466.3625		12.5
4-69	467.7875		12.5
4-70	467.8375		12.5
4-71	467.8625		12.5
4-72	467.8875		12.5
4-73	467.9125		12.5
4-74	469.4875		12.5
4-75	469.5125		12.5

Section 4: UHF Business Band

Section-Code	Frequency	Color Dot	BW
4-76	469.5375		12.5
4-77	469.5625		12.5
4-78	462.1875		12.5
4-79	462.4625		12.5
4-80	462.4875		12.5
4-81	462.5125		12.5
4-82	467.1875		12.5
4-83	467.4625		12.5
4-84	467.4875		12.5
4-85	467.5125		12.5
4-86	451.1875		12.5
4-87	451.2375		12.5
4-88	451.2875		12.5
4-89	451.3375		12.5
4-90	451.4375		12.5
4-91	451.5375		12.5
4-92	451.6375		12.5
4-93	452.3125		12.5
4-94	452.5375		12.5
4-95	452.4125		12.5
4-96	452.5125		12.5
4-97	452.7625		12.5
4-98	452.8625		12.5
4-99	456.1875		12.5
4-100	456.2375		12.5
4-101	456.2875		12.5
4-102	468.2125		12.5
4-103	468.2625		12.5
4-104	468.3125		12.5
4-105	468.3625		12.5
4-106	468.4125		12.5
4-107	468.4625		12.5
4-108	468.5125		12.5
4-109	468.5625		12.5
4-110	468.6125		12.5
4-111	468.6625		12.5
4-112	456.3375		12.5
4-113	456.4375		12.5
4-114	456.5375		12.5
4-115	456.6375		12.5
4-116	457.3125		12.5
4-117	457.4125		12.5
4-118	457.5125		12.5
4-119	457.7625		12.5
4-120	457.8625		12.5
4-121	Do not use		
4-122	464.8375		12.5

Section 5: Canada UHF Business Band

Section-Code	Frequency	Color Dot	BW
5-01	458.6625		25.0
5-02	469.2625		25.0

Section 6: Canada VHF Business Band

Section-Code	Frequency	Color Dot	BW
6-01	151.055		25.0
6-02	151.115		25.0

Notes

† Frequency code was 25 kHz BW prior to the 2013 FCC Narrowband Mandate.

- BW is the bandwidth in kHz.
- 12.5 kHz indicates narrow band channel, 25 kHz indicates wide band channel

3.4 Readout and Field Program QC or DQC Tone Codes

The RIB-600Analog can be field programmed for a 2-digit QC tone code or a 3-digit DQC tone code from Table b. In the following example the radio is programmed for a 100 Hz QC tone.

To enter a QC or DQC Tone Code:

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1. Refer to the Table b to determine the 2-digit QC Tone code or 3-digit DQC Tone code and write it down.

2. **Place the radio into Program / Readout Mode** by pressing and holding the **PROGRAM** button. A “P” will appear on the display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.

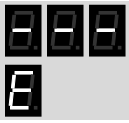
3. Click the **PROGRAM** button until the program display shows the Program Code “b”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the 2-digit Quiet-Call code or 3-digit Digital Quiet-Call code.

TONE CODE

4. Enter the 1st digit of the tone code (or 1st digit of the DQC code) by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

5. Enter the 2nd digit of the tone code (or 2nd digit of the DQC code) by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

6. **FOR DQC CODES ONLY** – Enter the 3rd digit of the DQC code by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.



7. Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.

   NOTE: If you attempt to save an incorrect code an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.

8. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

To readout QC or DQC Tone programming:

1. With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code “b”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to readout the 2-digit Quiet-Call code or 3-digit Digital Quiet-Call code.

2. Press and release the **ENTER** button. The display will show the 2-digit QC tone code or 3-digit DQC tone code. Each digit is separated by a hyphen.

   QC TONE CODE

3. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

Table b - Programmable QC Tone Table

Code	Frequency
01	67.0
02	71.9
03	74.4
04	77.0
05	79.7
06	82.5
07	85.4
08	88.5
09	91.5
10	94.8
11	97.4

Code	Frequency
12	100.0
13	103.5
14	107.2
15	110.9
16	114.8
17	118.8
18	123.0
19	127.3
20	131.8
21	136.5
22	141.3

Code	Frequency
23	146.2
24	151.4
25	156.7
26	162.2
27	167.9
28	173.8
29	179.9
30	186.2
31	192.8
32	203.5
33	210.7

Code	Frequency
34	218.1
35	225.7
36	233.6
37	241.8
38	250.3
39	69.4
40	159.8
41	165.5
42	171.3
43	177.3
44	No Tone

Code	Frequency
45	183.5
46	189.9
47	196.6
48	199.5
49	206.5
50	229.1
51	254.1
00	No Tone

Table b - Programmable Digital DQC Tone Table

Code	Code	Code	Code	Code	Code	Code	Code	Code
023	071	143	225	266	356	446	523	645
025	072	145	226	271	364	452	532	654
026	073	152	243	274	365	454	546	664
031	074	155	244	306	371	455	565	703
032	114	156	245	311	411	462	606	712
036	115	162	246	315	412	464	662	723
043	116	165	251	325	413	465	612	731
047	122	172	252	331	423	466	624	732
051	125	174	255	332	431	503	627	734
053	131	205	261	343	432	506	631	743
054	132	212	263	346	445	516	632	754
065	134	223	265	351				

Table C - Programmable 2-Tone, DTMF and Selcall Codes

Code	Feature		Default	Description
Remove 2-Tone, DTMF or Selcall Programming				
0	Delete		√	Remove all 2-Tone, DTMF or Selcall programming
2-Tone Codes				
90	See Note	See Note		• If the radio displays 2-Tone Code “90” on readout it has been programmed for custom frequencies. • When the radio is programmed for 2-Tone Decode operation, it is recommended that you do NOT use QC Tone Codes greater than “23” (146.2 Hz).
91	330.5	569.1		
92	349.0	600.9		
93	368.5	634.5		
94	389.0	669.9		
95	410.8	707.3		
96	433.7	746.8		
97	457.9	788.5		
98	483.5	832.5		
99	330.5	600.9		
DTMF and Selcall Codes				
1 + xxx	DTMF			Enter “1” and 3-7 DTMF digits for Primary Decode (0123456789)
2 + xxx	Selcall			Enter “2” and 3-7 Selcall digits for Primary Decode (0123456789)
Additional options				
3 + xxx	Decode Reset Time (seconds)		10	After decoding 2-Tone, DTMF or Selcall normal reception is possible without the need for the 2-tone, DTMF or Selcall code. Paging Decode will be reset after the programmed Decode Reset Time. Decode Reset Time can be programmed for 0-255 seconds, and can be entered as a 1, 2 or 3 digit entry.
41	Decode with subtone enable			2-Tone, DTMF and Selcall decode requires correct subtone to decode.
42	Decode with subtone disabled		√	2-Tone, DTMF and Selcall decode does not require correct subtone to decode

3.5 Readout and Field Program 2-Tone, DTMF or Selcall Decode Operation

For special applications, it is desirable to program the RIB-600Analog for 2-Tone, DTMF or Selcall decode operation. The user is able to field program the radio for one of the 9 pre-determined 2-Tone pairs specified in Table C, or for any 3-7 digit DTMF or Selcall sequence. The 2-Tone codes correspond to field programmable 2-Tone encode (transmit) codes available in other RITRON products.

2-Tone, DTMF or Selcall decode can be used to selectively call the radio in a system where multiple radios operate on a single frequency. When the radio is programmed for a 2-Tone, DTMF or Selcall Paging Decode code, no call will be heard unless the code has been successfully decoded. After decoding, normal reception is possible without the need for the 2-tone, DTMF or Selcall code. Paging Decode will be automatically reset after a programmable period of inactivity.

In the following example we will program for paging operation with 2-Tone Decode Code 94 frequencies of 389.0 and 669.9 Hz.

To enter a 2-Tone, DTMF or Selcall decode code:

94	1.	Write down the desired 2-Tone, DTMF or Selcall ANI code.
	2.	**Place the radio into Program / Readout Mode** by pressing and holding the **PROGRAM** button. A "P" will appear on the display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.
	3.	Click the **PROGRAM** button until the program display shows the Program Code "C". Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept a 2-digit 2-Tone code, or a 3 to 7-digit DTMF or Selcall decode sequence.
	4.	**TO REMOVE 2-TONE, DTMF OR SELCALL PROGRAMMING** – Enter a "0" using the **PROGRAM** button. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit. Proceed to Step 10 to save this programming change.
	5.	**FOR DTMF CODES ONLY** – Enter a "1" using the **PROGRAM** button. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
	6.	**FOR SELCALL CODES ONLY** – Enter a "2" using the **PROGRAM** button. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
	7.	Enter the 1st digit of the 2-Tone code (or 1st digit of the DTMF or Selcall code) by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
	8.	Enter the 2nd digit of the 2-Tone code (or 2nd digit of the DTMF or Selcall code) by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
	9.	**FOR DTMF OR SELCALL CODES ONLY** – Enter the 3rd digit of the DTMF or Selcall decode sequence. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit. Continue entering up to seven digits.
 	10.	Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry. **NOTE:** If you attempt to save an incorrect code, an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.
	11.	Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

2-TONE, DTMF OR SELCALL CODE

To readout a 2-Tone, DTMF or Selcall decode programming:

	1.	With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code "C". Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to readout the 2-Tone, DTMF or Selcall programming.
	2.	Press and release the **ENTER** button. The display will show a 2-digit 2-Tone code, a 1 followed by the 3 to 7-digit DTMF code, or a 2 followed by 3 to 7-digit Selcall code. Each digit is separated by a hyphen.  2-TONE CODE **NOTE:** A zero (0) indicates that there is no 2-Tone, DTMF or Selcall decode programming.
	3.	Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

3.6 Field Program Advanced Feature Codes

The RIB-600Analog can be field programmed for a variety of additional features. Refer to Table A for the 2 or 3-digit codes available for field programming. In our example we will program the radio to Delay Message Playback for 2 seconds. The RIB-600Analog is set from the factory with these √ options **enabled.**

To enter an Advanced Feature Code:

622

1. Refer to Table A to determine the 3-digit feature code and write it down.

2. **Place the radio into Program / Readout Mode** by pressing and holding the **PROGRAM** button. A "P" will appear on the LED display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.

3. Scroll to the character "A" by clicking the **PROGRAM** button until the program display shows the correct character. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the first digit of the Feature code.

FEATURE CODE

4. Enter the 1st digit of the feature code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

5. Enter the 2nd digit of the feature code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

6. If necessary, enter the 3rd digit of the feature code by clicking the **PROGRAM** button until the program display shows the desired number. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

7. Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.

   NOTE: If you attempt to save an incorrect code, an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.

8. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

Table A - Advanced Feature Codes

Code	Feature	Default	Description
	Pre-Announce Tone		
231	Pre-Announce Tone – On	√	Enable this feature to play a short tone over the PA speakers whenever the RIB-600Analog receives a signal.
232	Pre-Announce Tone – Off		Disable Pre-Announce Tone
23xx	Pre-Announce Tone Volume	25	Enter the 2-digit Pre-Announce Tone Volume between 03-99%
	Interrupt Mode		
241	Interrupt Mode enable		Enable this feature to allow new incoming messages to interrupt playback of recorded messages or Weather Alert messages. **NOTE:** If the RIB-600Analog is in the process of receiving a message it cannot be interrupted.
242	Interrupt Mode disable	√	Disable Interrupt Mode
	Battery Powered Operation		
251	Battery Saver – On		Enable Battery Saver operation for Solar powered RIB-600Analog.
252	Battery Saver – Off	√	Disable Battery Saver operation for RPS-1B powered RIB-600Analog.
253	Solar Powered Low Battery Alert		Enable for Low Battery Alert when Solar powered. A short tone will be heard at the end of each broadcast to indicate that the solar battery is nearly discharged.
254	Battery Back-Up Low Battery Alert		Not used with RIB-600Analog.
255	Low Battery Alert – Off	√	Disable Low Battery Alert tone.

Table A - Advanced Feature Codes

	Weather Alert Operation		
261	Weather Alert – On		Enable this feature to receive local NOAA weather radio emergency broadcasts from the National Weather Service and play them over the Loudmouth® speaker.
262	Weather Alert – Off	√	Disable Weather Alert
263	Weather Alert - On with Relay Operation		Enable relay activation when a Weather Alert is received.
26xx	Weather Alert Timeout	60	Set the time that the Weather emergency broadcast will heard from 10-255 seconds.
	Bandwidth		
281	Wideband Operation		When set the RIB-600Analog is forced into wideband operation. This option must be programmed after Frequency has been programmed.
282	Narrowband Operation	√	When set the RIB-600Analog is forced into narrowband operation. This option must be programmed after Frequency has been programmed.
	Switch Input Operation		
291	Switch On Only		Radio will play the pre-recorded Switch On message when the switch input is pulled to ground.
292	Switch Off Only		Radio will play the pre-recorded Switch Off message when the switch input is released from ground.
293	Switch On and Off		Radio will play the pre-recorded Switch On message when the switch input is pulled to ground, and will play the pre-recorded Switch Off message when the switch input is released from ground.
294	Switch Input Disable	√	Disable all Switch Input operation.
31	Record Switch On Message		After entering the code the radio will record the next received message (6 seconds max). The recorded message will playback after recording to allow review of the message.
32	Record Switch Off Message		After entering the code the radio will record the next received message (6 seconds max). The recorded message will playback after recording to allow review of the message.
41	Play Switch On Message		Plays the recorded Switch On message
42	Play Switch Off Message		Plays the recorded Switch Off message
	Relay Operation		
511	Relay operation – Disable	√	Disable relay operation.
512	Relay operation – Enable		Set this option for relay closure when the RIB-600Analog receives a valid signal or on Switch Input detection. The relay will remain closed as long as a signal is received. If Record and Play is enabled, the relay will close as soon as a signal is received and remain closed throughout any Record and Play Delay and Recorded Message Replay.
52xxx	Minimum Relay time –sec.	√	Once the relay is activated on a valid received signal, this sets a minimum time it will remain active. (Relay must be enabled with code 512) Minimum Relay time can be set between 0-255 seconds. Seconds can be entered as a 1, 2 or 3 digit entry.
	Message Playback Options		
62	Live Message Playback	√	Incoming messages are not recorded and are heard over the speaker in real time. If the Pre-Announce Tone option is enabled you will miss the incoming message while the tone is heard.
62xxx	Delay Message Playback – Sec.		Incoming messages are recorded and playback starts after the programmed delay time, even if the radio is still receiving. Seconds can be entered as a 1, 2 or 3-digit entry. If the Pre-Announce Tone option is enabled the entire incoming message will play after the tone is heard.
61	No Repeat Message Playback	√	Incoming messages are not repeated.
61x	Repeat Message Playback – # times		Incoming messages are recorded and repeated concurrently for the number of times programmed, with 3 seconds between each repeat. The number of repeats can be 1-9.
632	Record and Play Enable		Playback of Recorded messages occurs after radio has finished receiving or after Recorded Message Delay time, whichever is longer.
	Special Features		
21	Reset to Factory Defaults		Resets RIB-600Analog to Factory default programming.
22	Display Radio Revision		RIB-600Analog will display a sequence of 6 digits to identify operating code revision. This is helpful when troubleshooting the radio.

3.7 Readout and Field Program RIB-600Analog Audio Level

The RIB-600Analog can be field programmed for any audio level between 05-99% by entering the audio level as a 2-digit code. Field programming Audio Level sets the voice audio levels at both the 600Ω balanced output and the AUX OUT line level output.

In our example we will program the radio for 25% Audio Level. The RIB-600Analog is set from the factory with a 50% audio level setting**.**

To enter the Audio Level setting:

25

1. Write down the desired audio level.

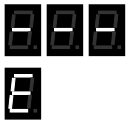
2. **<u>Place the radio into Program / Readout Mode</u>** by pressing and holding the **PROGRAM** button. A “P” will appear on the display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.

3. Scroll to the character “U” by clicking the **PROGRAM** button until the program display shows the correct character. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the first digit of the audio level setting.

AUDIO LEVEL

4. Enter the 1st digit of the audio level setting by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.

5. Enter the 2nd digit of the audio level setting by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.



6. Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.

   NOTE: If you attempt to save an incorrect code, an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.

7. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

IMPORTANT NOTE: Audio level setting below 10% are entered as a 2-digit code with a first digit “0”.

To readout the Audio Level setting:

1. With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code “U”. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to readout the Audio Level setting.

2. Press and release the **ENTER** button. The display will show the 2-digit Audio Level setting, followed by a hyphen.

AUDIO LEVEL SETTING 25%

3. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

Typical Audio Level Output:

1 kHz tone at 1.5 kHz deviation, narrowband

Volume %	600Ω BALANCED mVRMS	AUX OUT mVRMS
10	14	92
20	24	163
30	35	244
40	47	311
50	60	389
60	74	460
70	85	548
80	99	636
90	120	711
99	134	778

3.8 Readout and Field Program the NOAA Weather Frequency

The RIB-600Analog can be programmed to play severe weather warnings originating from the National Weather service that are broadcast on one of seven NOAA weather frequencies. The RIB-600Analog is shipped from the factory without a NOAA weather frequency selected. Before the Weather Alert feature can be used you must first select the local NOAA frequency. In this example the local NOAA weather frequency is 162.550 MHz.

To enter the NOAA Weather Frequency:

	1. **<u>Place the radio into Program / Readout Mode</u>** by pressing and holding the **PROGRAM** button. A "P" will appear on the LED display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.
	2. Scroll to the character "d" by clicking the **PROGRAM** button until the program display shows the correct character. Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to program the NOAA Weather Frequency code.
	3. Press and release the **ENTER** button to begin searching for the local NOAA weather frequency. If the radio has not been programmed for a NOAA weather frequency a "1" will appear on the display indicating that the RIB-600Analog is receiving on NOAA frequency 1 per Table d below.
	4. Press and release the **PROGRAM** button to step through the 7 NOAA weather frequencies. Pause on each frequency to listen for the NOAA weather broadcast on the RIB-600Analog speaker.
	5. When you hear the NOAA weather broadcast, press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.
	6. Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

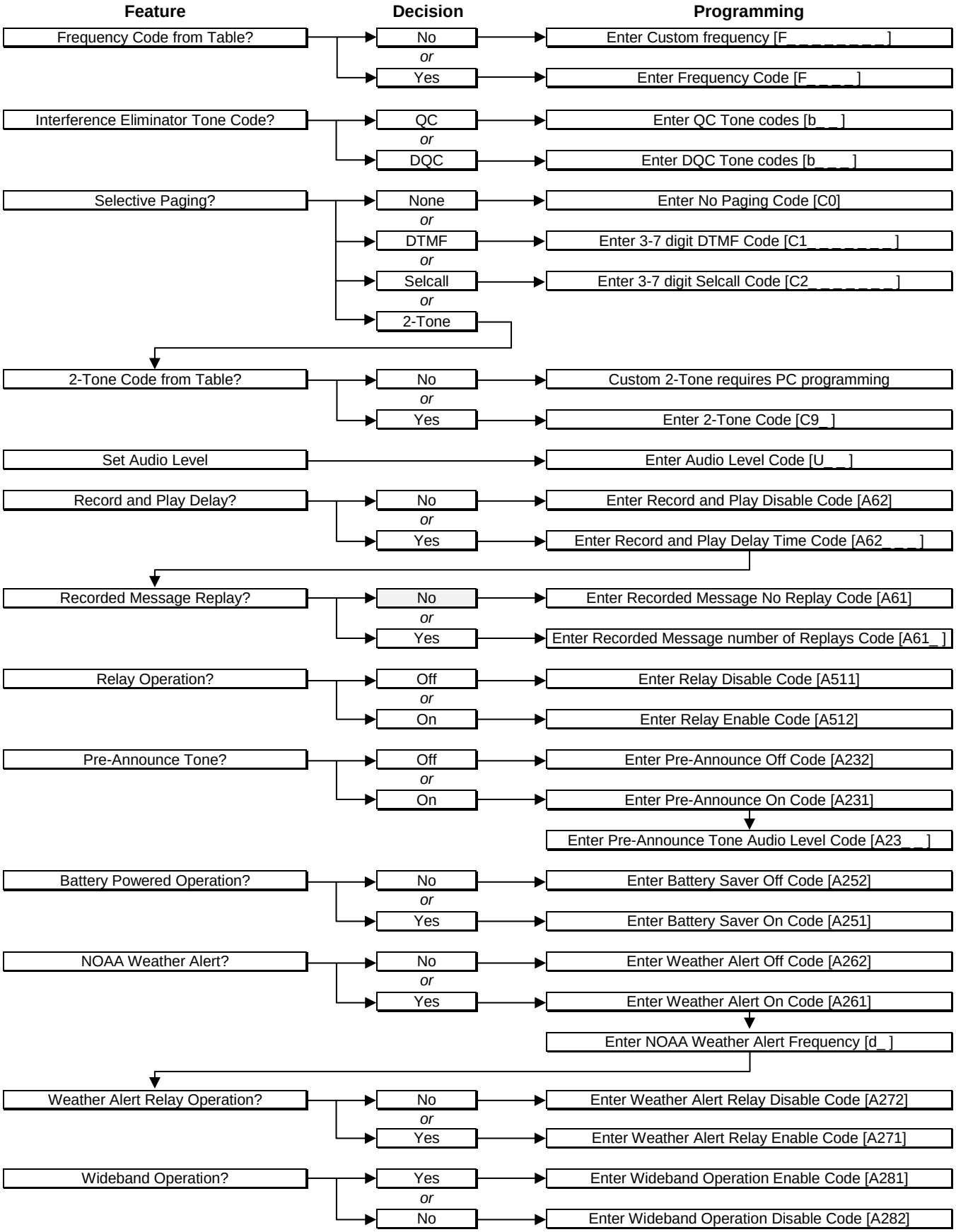
To readout and verify NOAA Weather Frequency programming:

	1. With the radio in program mode, click the **PROGRAM** button until the program display shows the Program Code "d". Pause—the radio will show a hyphen across the center of the display to indicate that it is ready to readout the NOAA Weather frequency programming.
	2. Press and release the **ENTER** button. The display will show the single digit NOAA Weather Frequency code from Table d and the NOAA weather broadcast will be heard on the speaker.
	3. Press the **ENTER** button to return to program mode, press the **ENTER** button a second time to exit program mode.

Table d – NOAA Weather Frequency Codes

Code	Frequency	NOTE
1	162.400 MHz	A complete list of NOAA weather frequencies available in your area can be found at:
2	162.425 MHz	http://www.nws.noaa.gov/nwr/coverage/station_listing.html
3	162.450 MHz	
4	162.475 MHz	
5	162.500 MHz	
6	162.525 MHz	
7	162.550 MHz	

3.9 Field Programming Flow Chart



4 Operation

Once installed, operating the RIB-600Analog radio receiver requires no human contact. Portable, base station or mobile 2-way radios can deliver voice messages directly to a PA system with a simple press of the PTT button for either live or recorded playback. This section describes the subtle differences in operation for various RIB-600Analog options and installations.

4.1 Basic Operation

Basic operation is defined as a RIB-600Analog receiver programmed on a dedicated radio frequency with a QC or DQC code. The receiver is also programmed for 50% Audio Level and a pre-announce tone.

1. Move to an area that is away from any PA system speaker to prevent feedback.
2. Be sure the microphone on the calling radio is pointed away from any PA system speaker.
3. Set the portable, base station, or mobile radio to the RIB-600Analog channel.
4. Monitor the channel before transmitting to be sure there are no other radio users on the RIB-600Analog frequency.
5. Press and hold the PTT button and pause for about 1 second, allowing the pre-announce tone to be heard.
6. Speak into the radio microphone to broadcast your message over the PA system speakers. If other radios are operating on the RIB-600Analog channel they will also hear your message.
7. Release the PTT button when your message is complete.
8. Return the portable, base station, or mobile radio to the normal operating channel.

4.2 DTMF and Selcall Paging

To access the RIB-600Analog receiver the 2-way radio must be programmed to send the correct DTMF or Selcall code. The user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel. Only 2-way radios programmed to send the correct DTMF or Selcall code on the RIB-600Analog channel can access the PA system.

1. Move to an area that is away from any PA system speaker to prevent feedback.
2. Be sure the microphone on the calling radio is pointed away from any PA system speaker.
3. Set the portable, base station, or mobile radio to the RIB-600Analog channel.
4. Monitor the channel before transmitting to be sure there are no other radio users on the RIB-600Analog frequency.
5. Press and hold the PTT button.
6. Wait until the entire DTMF or Selcall code has been sent, and then an additional 1 second for the pre-announce tone.
7. Speak into the radio microphone to broadcast your message over the PA system speakers. If other radios are operating on the RIB-600Analog channel they will also hear your message.
8. Release the PTT button when your message is complete.
9. Return the portable, base station, or mobile radio to the normal operating channel.

With DTMF or Selcall Paging operation:

- Once the RIB-600Analog receiver has decoded the correct DTMF or Selcall code any radio on the RIB-600Analog channel can talk over the speaker without the need for DTMF or Selcall paging.
- After a DTMF or Selcall code has been successfully decoded, the programmable Paging Reset Time sets the length of time the RIB-600Analog receiver can go without receiving a signal before DTMF or Selcall is once again required for access. Factory default Paging Reset Time is 10 seconds.
- DTMF or Selcall paging can be used in conjunction with QC or DQC for added security. The 2-way radio and the RIB-600Analog receiver must be programmed for the same QC or DQC code.

4.3 2-Tone Paging

To access the RIB-600Analog receiver the 2-way radio must first send the correct 2-Tone Paging code. Once access to the PA system is accomplished, the user simply presses the 2-way radio's PTT and speaks while on the RIB-600Analog channel. After a period of inactivity the RIB-600Analog receiver will automatically reset, and will then require the correct 2-Tone Paging code to re-gain access.

1. Move to an area that is away from any PA system speaker to prevent feedback.
2. Be sure the microphone on the calling radio is pointed away from any PA system speaker.
3. Set the portable, base station, or mobile radio to the RIB-600Analog channel.
4. Monitor the channel before transmitting to be sure there are no other radio users on the RIB-600Analog frequency.
5. Send the correct 2-Tone Paging code. Refer to your 2-way radio's user manual to determine how you send 2-tone paging codes.
6. Wait until the entire 2-tone code has been sent.
7. Press and hold the PTT button and pause for about 1 second, allowing the pre-announce tone to be heard.
8. Speak into the radio microphone to broadcast your message over the PA system speakers. If other radios are operating on the RIB-600Analog channel they will also hear your message.
9. Release the PTT button when your message is complete.
10. If the radio PTT is pressed again before the RIB-600Analog receiver has reset, the message will be heard on the PA system speakers without the need for a 2-tone Paging code.
11. Return the portable, base station, or mobile radio to the normal operating channel.

With 2-Tone Paging operation:

- Once RIB-600Analog receiver has decoded the correct 2-tone code any radio on the RIB-600Analog channel can talk over the PA system without the need for 2-tone paging.
- After a 2-tone code has been successfully decoded, the programmable Two-Tone Reset Time sets the length of time the RIB-600Analog receiver can go without receiving a signal before 2-tone is once again required for access. Factory default Two-Tone Reset Time is 5 seconds.
- Can be used in conjunction with QC or DQC for added security. The 2-way radio and the RIB-600Analog receiver must be programmed for the same QC or DQC code**.**

4.4 Record and Play (20 seconds of record time MAXIMUM)

When 2-way radios are used in the same area as the PA system speakers, feedback may result that can render the system unusable. For those applications the RIB-600Analog receiver can be programmed to record the incoming messages and play them back over the PA system speakers. Set the portable, base station, or mobile radio to the RIB-600Analog channel.

1. Monitor the channel before transmitting to be sure there are no other radio users on the RIB-600Analog frequency.
2. Press and hold the PTT button on your 2-way radio.
3. Speak into the radio microphone to record your message into the RIB-600Analog receiver. If other radios are operating on the RIB-600Analog channel they will hear your message as you record it.
4. Release the PTT button when your message is complete.
5. The pre-announce tone will be heard and the PA system speakers will begin playing your recorded message.
6. When finished, return the portable, base station, or mobile radio to the normal operating channel.

With Record and Play operation:

- Recorded messages are limited to a maximum of 20 seconds.
- Any of the selective signaling options can be used in conjunction with Record and Play.
- The RIB-600Analog can be programmed to delay the playback of a recorded message. This is useful when using the Relay option for activation a strobe light to indicate that a speaker message is imminent.
- The RIB-600Analog can be programmed to repeat a recorded message concurrently for the number of times programmed with 3 seconds between each repeat. The pre-announce tone will only be heard once, before the start of the recorded message playback.

4.5 Weather Alert

The RIB-600Analog can automatically play emergency weather warnings from the National Weather Service that is broadcast on one of the seven NOAA weather frequencies. The RIB-600Analog will listen for emergency weather broadcasts any time it is not being used. To use this feature the RIB-600Analog must first be programmed for your local NOAA weather frequency.

With Weather Alert operation:

- Your local NOAA weather frequency must be programmed into the RIB-600Analog and the Weather Alert feature must be ON per the instructions in the Programming section of this manual.
- If a severe weather notification from NOAA weather service occurs while the RIB-600Analog is in use the Weather Alert operation will not be activated.
- When a severe weather notification from NOAA weather service activates Weather Alert operation, the RIB-600Analog will broadcast the NOAA weather alert message non-stop for a factory default time of 1 minute.
- A Weather Alert message can be interrupted by an incoming message from your 2-way radio. While playing a Weather Alert message the RIB-600Analog checks your normal radio channel every 4 seconds for incoming messages. If an incoming message is detected the RIB-600Analog immediately leaves the Weather Alert broadcast and reverts to the incoming message.
- The maximum Weather Alert Time is set at the factory for 1 minutes, but is Field and PC programmable from 10 seconds to 255 seconds (4.25 minutes).

The RIB-600Analog receiver is not intended for use as a stand-alone weather receiver.

4.6 RIB-600Analog Options

Certain RIB-600Analog options affect operation as follows:

Pre-Announce Tone

With this feature enabled the RIB-600Analog will sound a short tone prior to each broadcast to notify listeners that a page is forthcoming.

Relay Enable

Set this option for relay closure when the RIB-600Analog receives a valid signal. The relay will remain closed as long as a signal is received. If Record and Play is enabled, the relay will close as soon as a signal is received and remain closed throughout any Record and Play Delay and Recorded Message Replay. The relay can also be enabled whenever a NOAA Weather Alert is received.

Delay Message Playback

The playback of a received, recorded message is delayed for the Delay Message Playback time whenever a valid incoming message is received. The RIB-600Analog can also be set to start playback as soon as the received incoming message is complete by enabling the Record and Play feature.

Recorded Message Replay

Recorded messages are repeated concurrently for the number of times programmed with 3 seconds between each playback.

Field Programming Enable

With this feature enabled the radio can be programmed via the display and buttons on the radio, without the need for the PC programmer software. Disable this feature to prevent programming in the field and allow only PC programming.

4.7 How to Minimize Feedback

Feedback is the result of the PA system speaker audio getting back into the microphone of the radio being used to access the RIB-600Analog receiver. This is a problem with the calling radio, not the RIB-600Analog receiver. Although the RIB-600Analog receiver is not intended to be used in the same area as the calling radio, steps can be taken to minimize the feedback effect.

Reduce RIB-600Analog receiver audio level

Do not set the RIB-600Analog receiver audio level any higher than is necessary to clearly hear the PA messages.

Maintain distance between the calling radio and the PA system speakers

In general, the calling radio should be at least 50 feet away from the speaker when the RIB-600Analog receiver is set for 50% volume. The necessary distance increases if the volume is turned up and decreases if the volume is turned down.

Make sure the radio microphone is turned away from the speaker

You do not want the speaker pointing directly into the microphone. Using your hand to shield the microphone can also reduce feedback.

Use a noise canceling microphone

Equip your calling radio with an optional noise-canceling microphone.

Record and Play feature eliminates feedback

The Record and Play feature completely eliminates feedback by recording your message and playing it back immediately after you have finished sending it to the RIB-600Analog receiver. See Section 3.6 Field Program Advanced Feature Codes to enable the Record and Play operation.

The calling radio is not transmitting while the message is broadcast, so speaker audio cannot get into the calling radio microphone.

4.8 Switch Input Operation

The RIB-600Analog will play a a pre-recorded voice message when a change in the Switch Input is detected. The White and Brown wires on the 9-Conductor Interface Cable are used to connect the Switch Input to a door switch, or any other device where switch closure detection is desired. The cable assembly also provides connection to the Relay Switch closure output.

Using the Switch Input to Test your System

The Ritron model RPB-1AG pushbutton is available for use with Switch Input Operation. When programmed for "Switch On Only" operation, simply press the pushbutton to play the pre-recorded Switch On message over your PA system to test for PA activation, volume, or any other programmed attribute. A separate test should also be performed using a radio to transmit to the RIB-600Analog receiver.

Switch Message Operation

- The Switch On Message is played when the Switch Input is pulled low.
- The Switch Off Message is played when the Switch Input is released from ground.
- Switch Input messages will not be played if the radio channel is busy, but instead will wait for the channel to clear before playing.
- Switch Input messages are played after the Pre-announce tone if the radio is programmed for this features.
- If the RIB-600Analog is programmed for Delay Message Playback or Recorded Message Repeat the Switch Input message will be delayed and repeated the same as an incoming message.
- Switch Input messages can be up to 6 seconds long.

To record a Switch Input Message:

In the following example we will program the RIB-600Analog to operate with a Switch On message only.

291	1.	Refer to Table A – Switch Input Operation and write down the code to enable the Switch On Message Only.
31	2.	Refer to Table A – Switch Input Operation and write down the code to record the Switch On message.
P-	3.	**Place the radio into Program / Readout Mode** by pressing and holding the **PROGRAM** button. A "P" will appear on the display. Release the **PROGRAM** button when a hyphen appears and the radio is ready to accept the first digit of your program entry.
A-	4.	Scroll to the character "A" by clicking the **PROGRAM** button until the program display shows the correct character. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the first digit of the Enable Switch On Message Only code.
2-	5.	Enter the 1st digit of the Switch On Message Only code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
9-	6.	Enter the 2nd digit of the Switch On Message Only code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
1-	7.	Enter the 3rd digit of the Switch On Message Only code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
---	8.	Press and release the **ENTER** button to save your programming. A hyphen will flash 3 times on the program display to indicate that programming was successful. The radio is now ready for another program entry.
E		**NOTE:** If you attempt to save an incorrect code, an "E" will appear on the display. Check the digits you are attempting to enter, then re-enter.
A-	9.	Scroll to the character "A" by clicking the **PROGRAM** button until the program display shows the correct character. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the first digit of the Record Switch On Message code.
3-	10.	Enter the 1st digit of the Record Switch On Message code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
1-	11.	Enter the 2nd digit of the Record Switch On Message code by clicking the **PROGRAM** button until the program display shows the desired number. **Pause**—the radio will show a hyphen across the center of the display to indicate that it is ready to accept the next digit.
-	12.	Press and release the **ENTER** button to place the radio into record mode. A hyphen will appear on the program display.
	13.	Using your portable or base radio, transmit the Switch On Message to the RIB-600Analog. When the PTT is released the RIB-600Analog will playback the recorded Switch On Message for review.
	14.	Press the **PROGRAM** button to continue programming, or press the **ENTER** button to exit program mode.

Switch On Only Code

Record Switch On Code

4.9 Relay Operation

Radios are equipped with a relay that can be set for a relay switch closure when the RIB-600Analog receives a valid signal. The relay can be used to provide a “Priority”, “Override” or “Emergency” switch closure to the PA amplifier, enabling the received signal to play over the PA system. The Blue and Green wires on the 9-Conductor Interface Cable are used to connect the relay switch.

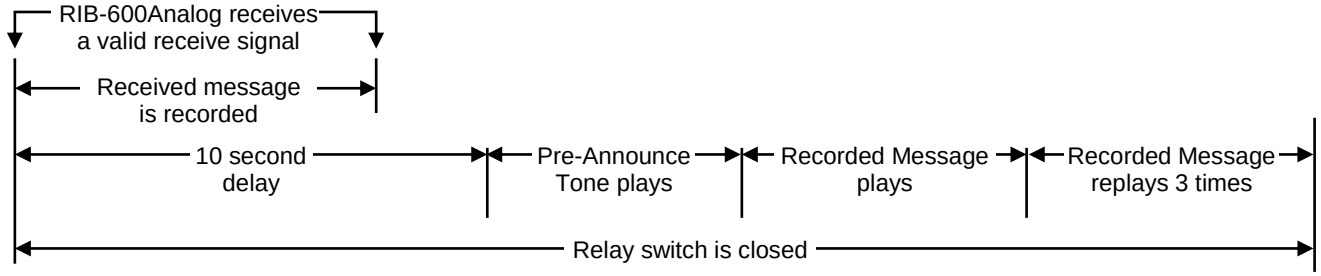
With the Relay Option enabled:

If Record and Play is disabled	The relay switch will close as soon as a valid signal is received, and will remain closed as long as the signal is present.
If Record and Play is enabled	The relay switch will close as soon as a valid signal is received and will remain closed until the recorded message has finished playing.
If Delay Message Playback is programmed	The relay switch will close as soon as a valid signal is received, and will remain closed for the delay time and until the recorded message has finished playing.
If Replay Message Playback is programmed	The relay switch will close as soon as a valid signal is received, will remain closed for any Delay Message Playback time and until the recorded message has been repeated in it’s entirety.

Radio Operation Timeline

The following timeline explains operation for RIB-600Analog radios. In this example the RIB-600Analog is programmed for:

- Record and Play
- Delay Message Playback of 10 seconds
- Repeat Message Playback 3 times
- Relay Operation Enabled
- Pre-Announce Tone Enabled



Strobe Light Operation

The RIB-600Analog relay can be used to operate a strobe light in a number of configurations via the 9-Conductor Interface Cable. The cable can provide:

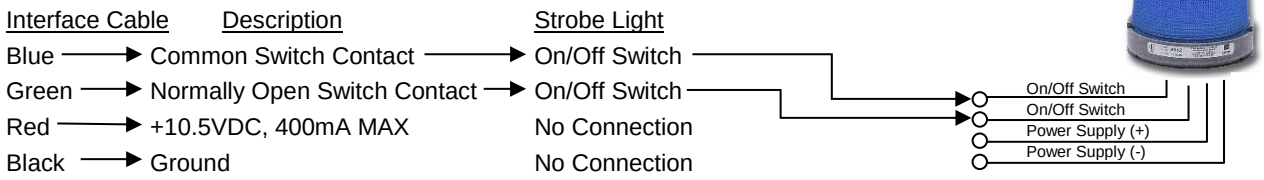
- A normally open relay switch that closes on a received signal. The relay switch can handle up to 3A when used to connect power to a strobe light.
- A normally closed relay switch that opens on a received signal.
- A +10.5VDC supply that can be used to power an LED strobe light rated at 400mA or less.
- A ground connection that can be used to provide a switch closure to ground.

Example: The strobe light and the relay function can be used to provide a visual indication that the Radio-To-Intercom Bridge is being used. If located reasonably close to the installation site of the receiver, the strobe could be located in the security office area.

Connecting the Relay Switch to a Strobe Light

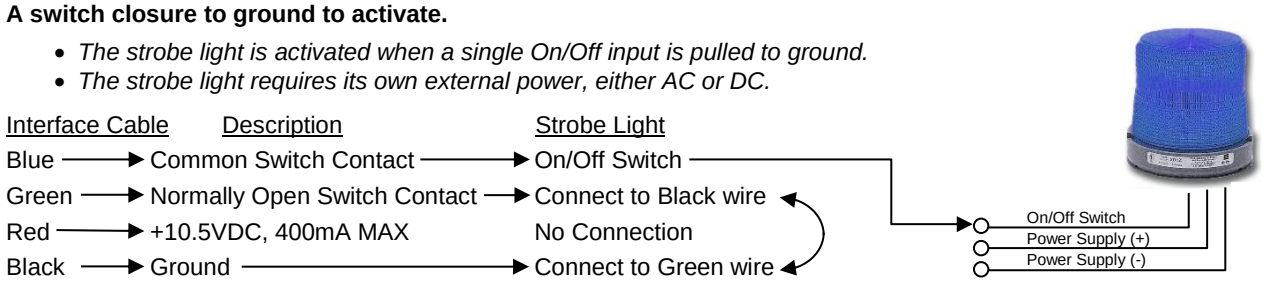
1. A simple switch closure capable of handling 3A current.

- *The strobe light is activated when two On/Off inputs are connected.*
- *The strobe light requires its own external power, either AC or DC.*



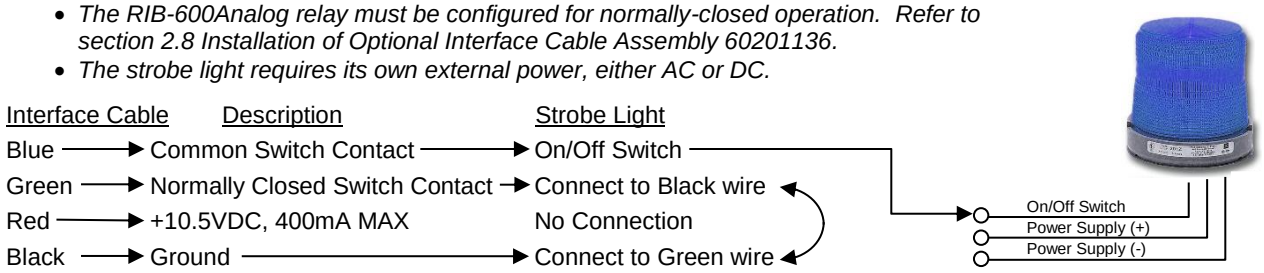
2. A switch closure to ground to activate.

- *The strobe light is activated when a single On/Off input is pulled to ground.*
- *The strobe light requires its own external power, either AC or DC.*



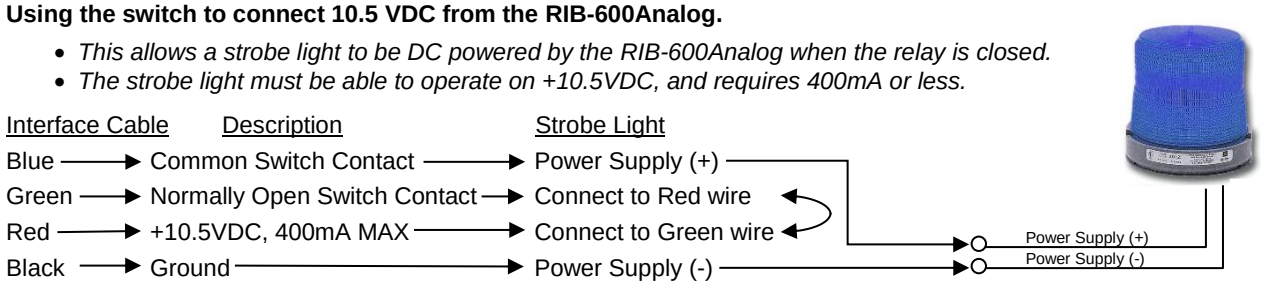
3. A switch opens to release from ground to activate.

- *The strobe light is activated when a single On/Off input is released from ground.*
- *The RIB-600Analog relay must be configured for normally-closed operation. Refer to section 2.8 Installation of Optional Interface Cable Assembly 60201136.*
- *The strobe light requires its own external power, either AC or DC.*



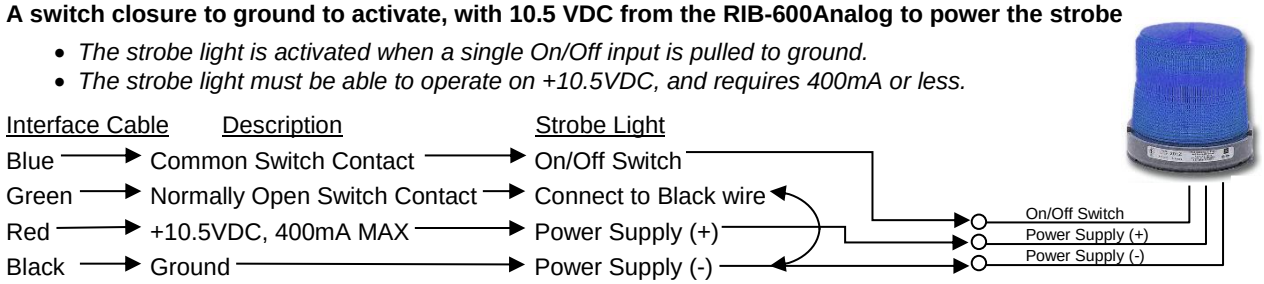
4. Using the switch to connect 10.5 VDC from the RIB-600Analog.

- *This allows a strobe light to be DC powered by the RIB-600Analog when the relay is closed.*
- *The strobe light must be able to operate on +10.5VDC, and requires 400mA or less.*



5. A switch closure to ground to activate, with 10.5 VDC from the RIB-600Analog to power the strobe

- *The strobe light is activated when a single On/Off input is pulled to ground.*
- *The strobe light must be able to operate on +10.5VDC, and requires 400mA or less.*



5 Specifications

5.1 General

Receiver physical dimensions		7.125”H x 5.5”W x 3.0”D
Receiver enclosure material		Hi- Impact Polycarbonate Thermoplastic
Receiver color		Black
Receiver weight		1 lb. 15 oz. (with AFB-1545 antenna)
Receiver mounting		2 aluminum brackets to side of radio
Receiver environmental		Indoor use only
RELAY	Connectors Output	RIB-600Analog Interface cable - Green, Blue Switch closure on received signal
AUX OUT	Connector Maximum Output Output Impedance	RCA Phono jack 800 mVRMS (RIB-600Analog received audio is adjustable) 50kΩ, unbalanced
600Ω MIC OUT	Connectors Maximum Output Output Impedance	RIB-600Analog Interface cable Yellow (COLD), Orange (HOT), Gray (ground) 200 mVRMS 600Ω, balanced
DC power connector		2.1mm coaxial DC jack (size M)
Antenna connector		50Ω BNC
Antenna		AFB-1545 dual-band (150-170 MHz, 450-470 MHz)

5.2 RPS-1B Power Cube

RPS-1B physical dimensions	2.93” L (74.5 mm) x 1.97” W (50 mm) x 1.14” H (29 mm)
RPS-1B mounting	Wall-mounted via 120 VAC plug.
RPS-1B connector	2.1mm coaxial DC plug molded to wire, center conductor = positive
RPS-1B environmental	indoor use only
RPS-1B input voltage	120 VAC, 60 Hz
RPS-1B output voltage	12 VDC @ 1.5A

5.3 RIB-600Analog Receiver

Selective signaling decode capability	• CTCSS (Quiet Call) • Digital Coded Squelch (Digital Quiet Call) • DTMF • Selcall • 2-Tone Paging Decode
Noise squelch sensitivity	Programmable, factory set for 12 dB SINAD
Frequency response	300 - 3000 Hz, de-emphasized
QC/DQC decode time	per EIA Standards
2-Tone decode frequency range	300 – 1500 Hz
Selcall decode standard	EEA tone set, 3-7 digits
DTMF decode standard	3-7 digits
FCC Qualification	FCC Part 15 SDoC
Canada Qualification	RSS-Gen/CNR-Gen

	UHF		**VHF / VHF MURS**	
Frequency range	450 - 470 MHz		150 – 165 MHz	
Channel steps	6.25 kHz		2.5 kHz	
Frequency stability	+/-1.5 PPM (-30° to +60° C)		+/-1.5 PPM (-30° to +60° C)	
Typical sensitivity (12 dB SINAD)	wide narrow	0.15 µV (-123 dBm) 0.19 µV (-121 dBm)	wide narrow	0.16 µV (-123 dBm) 0.18 µV (-122 dBm)
Adjacent Channel (EIA)	wide narrow	-70 dB -60 dB	wide narrow	-70 dB -60 dB
Spurious rejection	wide narrow	-70 dB -60 dB	wide narrow	-70 dB -60 dB
Image rejection (EIA)	wide narrow	-60 dB -60 dB	wide narrow	-60 dB -60 dB
Intermodulation (EIA)	wide narrow	-65 dB -65 dB	wide narrow	-65 dB -65 dB
QC/DQC decode deviation requirement	wide narrow	500 – 850 Hz 350 – 500 Hz	wide narrow	500 – 850 Hz 350 – 500 Hz
2-Tone decode deviation requirement	wide narrow	2.5 – 3.5 kHz 1.5 – 2.5 kHz	wide narrow	2.5 – 3.5 kHz 1.5 – 2.5 kHz

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

6 Warranty

WHAT THIS WARRANTY COVERS:

RITRON, INC. ("RITRON") provides the following warranty against defects in materials and/or workmanship in **RITRON Radios and Accessories** under normal use and service during the applicable warranty period (as stated below). "Accessories" means antennas, power cubes, and items contained in the programming and programming/service kits.

WHAT IS COVERED	FOR HOW LONG	WHAT RITRON WILL DO
RIB-600Analog Radio Receiver	1 year*	During the first year after date of purchase, RITRON will repair or replace the defective product, at RITRON's option, parts and labor
Accessories	90 days*	*****_After date of purchase_

WHAT THIS WARRANTY DOES NOT COVER:

- Any technical information provided with the covered product or any other RITRON products;
- Installation, maintenance or service of the product, unless this is covered by a separate written agreement with RITRON;
- Any products not furnished by RITRON which are attached or used with the covered product, or defects or damage from the use of the covered product with equipment that is not covered (such as defects or damage from the charging or use of batteries other than with covered product);
- Defects or damage, including broken antennas, resulting from:
  - misuse, abuse, improper maintenance, alteration, modification, neglect, accident or act of God,
  - the use of covered products other than in normal and customary manner or,
  - improper testing or installation;
- Defects or damages from unauthorized disassembly, repair or modification, or where unauthorized disassembly, repair or modification prevents inspection and testing necessary to validate warranty claims;
- Defects or damages in which the serial number has been removed, altered or defaced.
- Batteries if any of the seals are not intact.

IMPORTANT: This warranty sets forth the full extent of RITRON's express responsibilities regarding the covered products, and is given in lieu of all other express warranties. What RITRON has agreed to do above is your sole and exclusive remedy. No person is authorized to make any other warranty to you on behalf of RITRON. Warranties implied by state law, such as implied warranties of merchantability and fitness for a particular purpose, are limited to the duration of this limited warranty as it applies to the covered product. Incidental and consequential damages are not recoverable under this warranty (this includes loss of use or time, inconvenience, business interruption, commercial loss, lost profits or savings). Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. Because each covered product system is unique, RITRON disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

WHO IS COVERED BY THIS WARRANTY: This warranty is given only to the purchaser or lessee of covered products when acquired for use, not resale. This warranty is not assignable or transferable.

HOW TO GET WARRANTY SERVICE: To receive warranty service, you must deliver or send the defective product, delivery costs and insurance prepaid, within the applicable warranty period, to **RITRON, INC., 505 West Carmel Drive, Carmel, Indiana 46032, Attention: Warranty Department.** Please point out the nature of the defect in as much detail as you can. You must retain your sales or lease receipt (or other written evidence of the date of purchase) and deliver it along with the product. If RITRON chooses to repair or replace a defective product, RITRON may replace the product or any part or component with reconditioned product, parts or components. Replacements are covered for the balance of the original applicable warranty period. All replaced covered products, parts or components become RITRON's property.

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YOUR RIGHTS UNDER STATE LAW: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

WHERE THIS WARRANTY IS VALID: THIS WARRANTY IS VALID ONLY WITHIN THE UNITED STATES, THE DISTRICT OF COLUMBIA AND PUERTO RICO.