

SELF SERVICING USER PROGRAMMING INSTRUCTIONS



for Relm RP99 Series by



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#36 – 20th Avenue NW – Birmingham, AL 35215
Phone (205) 854-2611 – Email sales@falcondirect.com

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Administrator Programming Instructions for the RPV599

The RPV599 can be programmed by a PC using the optional PC software and cable available from Falcon Wireless. All frequencies in the 148-174 MHz band, both 25 kHz standard and 12.5 kHz narrow band channels can be programmed.

The RPV599 has the ability to operate on up to 99 channels with CTCSS (Continuous Coded Tone Squelch) and Digital Coded Tone Squelch) individually programmable for the receive and transmit frequencies of each channel. Both DTMF (Dual Tone Multi Frequency) and 2-tone sequential coding are programmable for both receive and transmit functions. ANI (Automatic Number Identification) is available in a DTMF format as well as automatic transponding capability. Priority scanning is a standard feature of the RPV599.

In an emergency situation, public safety communications administrators can program the RPV599 for interoperable communications with no requirement for PC software, cables, special tools or any internal adjustments.

Public safety users can also program the RPV599 for frequencies in the 136-148 MHz for coordination with amateur radio storm spotters who operate in the 145 MHz range. Operation on frequencies below 148 MHz is restricted to public safety users for emergency communications use at power levels not exceeding 2 watts. Instructions for programming frequencies in the 136-148 MHz band are available only by calling Falcon Direct at (205) 854-2611. This capability is not available to non-public safety users.

Programming, either by computer or by keypad in emergency situations is restricted to those who have administrative responsibility for a licensed public safety radio system and who have the knowledge and training required to perform such tasks.



Programming the RPV599

Anyone who has ever programmed a Relm radio is familiar with the *routine* followed for programming. The original Relm mobile (then known as Regency) set the pattern that has been followed to this day. The original WHS-150 handheld, and later the MPV32 were all programmed in essentially the same way. There are two important differences in the RPV599 (and the RPU499, the UHF model).

The first major difference is that it is no longer necessary to get inside the radio to move a jumper or flip a switch to get into the programming mode. The second difference is that those troublesome special codes used by Relm to designate CTCSS or DCS codes are no longer required. In the old days, you had to have a *translation chart* to convert the Relm code designator to the actual CTCSS or DCS tone required. Mercifully on the new RPV599 and RPU499 series, the actual codes can be programmed.

Once you understand the sequence of programming, you will have no trouble in making changes as required, or in an emergency to set up completely new frequencies on the spot. Here is the sequence that is followed:

The first thing entered is ALWAYS the RECEIVE frequency, followed by the RECEIVE SQUELCH MODE (CTCSS, DCS, or NONE), then the TRANSMIT frequency, then the TRANSMIT SQUELCH MODE. For most applications, these four parameters are all that will be required for typical programming. However, there are some additional steps available. Most users just toggle through them until the word END appears. At that point they either advance to the next channel, using the CHANNEL selector knob, and continue programming, or turn the radio OFF and back ON again to store the programmed changes.

Entering the Program Mode

To enter the Program mode, proceed as follows:

- 1) With the radio OFF, press and hold the LAMP (middle button on the left side of the radio) while simultaneously pressing and holding the DIAL (second button from the right on the front of the radio).
- 2) With the LAMP and DIAL buttons pressed and held, turn the radio ON. Continue to keep these buttons depressed for several seconds until SEL appears on the LCD display. You may then release the LAMP and DIAL buttons. Press the T/A button to display the active channel (normally this will be CH 1).

Programming the Receive Frequency

- 1) Move the CHANNEL SELECTOR KNOB (Top center) to select the desired channel for programming. Normally, we would assume that you would start with Channel 1, but it can be any channel.

- 2) While in the Program mode, press and hold the LAMP button while turning the CHANNEL SELECTOR KNOB until the second and third digits (starting from the left) of your desired frequency. For example, if you wanted to program the receive frequency of 155.0100, you would turn the knob until the digits "55" appeared following the first digit "1" which is fixed for VHF radios (It would be a "4" for UHF radios). Release the LAMP button after you have made the desired selection. This procedure is known as programming the *Megahertz* or MHz selection. In other words, the digits to the left of the "." are known as Megahertz. In this example, the frequency would be 155 Megahertz.
- 3) Next, you program the *Kilohertz* or kHz section to the right of the "." You will note that there are provisions for entering up to four digits. In our example, we are programming the frequency of 155.01 MHz. When there are no digits following the second digit, you ALWAYS enter two zeros. In this example, your actual entry would be "0100" or a complete frequency of 155.0100 MHz.

Some frequencies will actually have three digits followed by a last digit zero such as "1250" and for narrow band (12.5 KHz) channels, there may be four digits with the last digit ending in a "5". An example would be 155.0125 MHz. One important point to remember. ALL frequencies ALWAYS end in either a zero (0) or a five (5). They NEVER end in any other number! Press the PTT button (top button on the right hand side of the radio) to advance to the programming selection for RECEIVE SQUELCH MODE.

Programming the Receive Squelch Mode

You have three choices – No coded squelch to provide privacy from interfering signals or page alerting capability, CTCSS (a series of analog codes ranging from 67.0 to 233.5 Hz) for interference from co-channel users (i.e. those who share the channel with you), DCS (a digital coding system that provides essentially the same functions as CTCSS with a three digit code assignment plan such as 023, 064 etc. or OFF (normally the default setting). After pushing the PTT button when you finished inserting your receive frequency, proceed as follows:

- 1) To select your desired receive squelch mode, press the LO power button at the far right side of the radio front panel (underneath the LCD). This will bring up a scroll down menu to allow selection of the desired mode. The normal selection would be OFF. When finished with making your selection, press the PTT button (top right on the side of the radio) to advance to the next step – the TRANSMIT FREQUENCY.

Programming the Transmit Frequency

- 1) Program the Transmit frequency in the same manner as you programmed the Receive frequency.
- 2) When you finished entering the Transmit frequency data, press the PTT button to advance to the next step – the TRANSMIT TONE CODE.

Programming the Transmit CTCSS or DCS Tone Code

Transmit tone codes can serve a variety of functions. They can be used to identify the unit by a numeric code sent to other users (normally done with DTMF). Transmit codes can be used to send paging signals through repeaters to directly alert 2-tone pagers such as the Minitor IV, NOVA, or Sceptar, as well as radios with 2-tone decode capability such as the RPV516 and RPV599. CTCSS or DCS transmit codes are commonly used to provide privacy from interference by co-channel users. At this step we are choosing Only CTCSS, DCS, or OFF. (The CTCSS or DCS code is used to *unlock* an associated user group). Another use of CTCSS or DCS is to control access to a repeater station.

Virtually ALL repeaters are CTCSS or DCS protected. How do you know when you are dealing with a repeater? If all the radios are set up to talk directly to each other, we use the term *Simplex* to describe the mode of operation where the receive and transmit frequencies are the same. A repeater uses TWO frequencies – one for receiving and another than transmits simultaneously. If your programming list has a different receive and transmit frequency, the odds are that you will need a CTCSS or DCS signal to *open it up*.

CTCSS or DCS is rarely used on Simplex system although in areas of high frequency congestion, the use of CTCSS or DCS is not uncommon. By far, CTCSS is much more common than DCS. Just remember, if the tone frequency is under 250.0 Hz, and it is pointed off at the last digit, it is CTCSS. If it is a three digit code such as 032, it is DCS. Regrettably, the older Relm radios use a code transition chart that translates a 3-digit code to CTCSS. If the programming information was taken from a Regency (aka Relm) radio, you will need a code/frequency transition chart. You can find these charts at our web site – www.falcon4u.com/PagingTechnicalInfo.html. Information on 2-tone paging codes can also be found at the aforementioned web site. If in doubt, check with your local radio frequency coordinator.

Programming Configuration Data

After programming the Receive Frequency, the Receive tones, the Transmit Frequency and tones, there are additional parameters that can be programmed. For most users the default values preprogrammed by Falcon

Over the Air Cloning

One of the unique capabilities of the RPV599 is the function of transferring data from a master radio to any number of slaves by over the air cloning. As long as the slave radios are in close proximity (Several feet or so), any number can be programmed simultaneously.

To enter the CLONE mode, proceed as follows:

- 1) With the radio OFF, press and hold the LAMP (middle button on the left side of the radio) while simultaneously pressing and holding the DIAL button (second button from the left on the front of the radio).
- 2) Turn the radio ON while continuing to depress the LAMP and SCAN buttons. Continue to keep these buttons depressed for several seconds until the word SEL appears on the LCD display. You can now release the LAMP and DIAL buttons.
- 3) Display the current frequency by pressing and releasing the Monitor button (bottom button under the PTT button). Next, set the radio on the frequency of 155.0000 by pressing and holding the LAMP button while turning the CHANNEL SELECTOR KNOB (Center knob on the top of the radio). You will note that turning this knob changes only the second and third digits. The first digit remains as a “1” for VHF radios. This would be a “4” for UHF radios that are set for 455.0000. Continue turning the knob until “55” appear as the second and third digits. Release the LAMP button.
- 4) Change the remaining digits following 155. to 0000. Do this by turning the CHANNEL SELECTOR KNOB right or left, whichever appears to be closer from your starting point, until “0000” is displayed. When properly programmed, the display should show 155.0000.

Program both the radio that will be sending the data (Called the Master) and those that will receive the data (Called the Slaves) in accord with the preceding instructions. Be sure that you keep the Master unit separated from the Slaves.

When ready to program, on the MASTER radio, press the PTT (Push to Talk) button or more applicably in this case, the *Send* button. The display of the MASTER radio will display *CLONE* and the display on the Slave radios will display *CLONE*.

This process can take up to eight (8) minutes. Make sure all radios have fully charged batteries before cloning. Do NOT move any of the radios while data is being transferred or turn the radios off. This can corrupt the data. Once the cloning has started, let it finish! Direct or factory default will be sufficient.

For those that wish to change the values in the Configurations parameters, we recommend that you do this using the optional PC cable and software available from Falcon Direct.

Completing your programming

After entering the Transmit CTCSS, DCS or OFF tone push the PTT to advance through the final steps of Configuration Menu Programming. There are ten (10) steps in the Configuration Menu programming. To complete programming of your first channel, press the PTT button ten times.

The last item to be displayed on the screen will be NEXT CH. If you wish to program on change another channel, turn the CHANNEL SELECTOR knob to display the desired channel and follow the preceding steps. When you have programmed your last channel, turn your radio OFF and back ON again to complete programming. If you make a mistake during programming, you can return to the step to be corrected by advancing through the end of the channel programming and returning to the input to be corrected.

Note: The ten selections in the Configuration Menu are normally correct for most users in the default setting. If you wish to use features such as 2-tone paging, 2-tone encode, DTMF ID or other advanced features, we recommend that you purchase the software kit, available from Falcon Direct for \$49.95. The manual programming described in this booklet is primarily for those who have a need to change frequencies in the field. The PC kit is much faster for general programming and always recommended for advanced feature programming.

Warranty and Service Plans

If you prefer, we offer a special option package that includes programming of the first sixteen channels with the special features of your choice and a one year Next Day Exchange (N.D.E.) supplemental warranty program for \$57. If you have a problem during the first year, you simply call us at 1-800-489-2611 and we send you a replacement radio with call tags for return of your defective radio. This plan can be renewed for the second year for \$37.

If you would like to add the N.D.E., please return your radio to Falcon Direct - #36 – 20th Avenue NW – Birmingham, AL 35215 with desired programming instructions and your check for \$57 or credit card number as desired. If you prefer, we will program your first 16 channels without N.D.E. for \$20.

The normal factory warranty is two years covering parts and labor. Abuse, antennas, and batteries excluded. If you are not covered by N.D.E., follow the warranty return instructions provided in your Relm operating manual. Telephone assistance in programming is available at a cost of \$25 for up to 30 minutes of assistance with billing to your credit card by calling 1-800-489-2611. Additional time, if required, will be billed at \$15 per 15 minutes.

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