OPERATING INSTRUCTIONS

PSR-2202A
Programmable Synthesized Repeater
Catalog Number 96770

Audio Intelligence Devices, Inc.

INTRODUCTION

AID is the world's largest manufacturer of electronic surveillance devices. We are proud to be your chosen supplier of intelligence equipment. Our products are available exclusively to certified law enforcement personnel, and are precisely engineered and carefully manufactured to serve your professional needs.

This instruction manual explains the correct way to operate the device for optimal performance. To insure reliability, the operator should study this manual before using the equipment.

If there are any questions concerning the proper operation or application of any of our products, please contact your personal regional sales representative or our factory for immediate assistance.

Courses in the use and techniques of intelligence equipment are available at our ***National Intelligence Academy***, the law enforcement training division of ***AID.*** Please call (954) 418-1440 for further course information.

Call: (800) 243-4642

www.aid-nia.com

DESCRIPTION

The ***AID*** Model PSR-2202A is a fully synthesized, multi-channel VHF-VHF repeater. The frequency range of the PSR-2202A is 150 to 174 MHz.

The PSR-2202A produces two watts of RF power into a 50-ohm load with a 12 VDC input. The unit may be powered from any external source providing 12 to 15 VDC with a minimum capacity of 1 Ampere.

The PSR-2202A has sixteen programmable receive channels and two programmable transmit channels. On the PSR-2202A, the minimum channel spacing between the receive channels and the transmit channels is 3.5 MHz. The maximum spread of the receive channels and transmit channels is 2.0 MHz.

Additionally, the PSR-2202A is fully compatible with both AGC and compandored transmitters. It also has both **NARROW** (12.5 KHz) and **WIDE** (25 KHz) bandwidth receive capabilities. Transmit is **NARROW** (12.5 KHz)

UNPACKING

The following items are packed with the PSR-2202A:
-Repeater antenna
-Repeater test lamp
-Power cord
-SDC CD-Rom with programming cable

Carefully unpack the equipment from the shipping carton. Do not discard the carton or the packing material. In the event that the unit needs to be returned to ***AID*** for update or repair, use of the original shipping carton is advised.

OPERATION

Connect the antenna supplied to the PSR-2202A's antenna BNC connector. The antenna connector is a "snap" action type BNC. Then place the antenna on a suitable ground plane.

The PSR-2202A may be powered from any 12 to 15 VDC power source that has a minimum 1 Ampere capacity.

CAUTION: When connecting the PSR-2202A to a cigarette lighter receptacle, be sure the receptacle is a 12 VDC, negative ground source and can supply the required 1 Ampere minimum of current. Also, be sure that the receptacle is free of corrosion and tobacco residue and that there is no current limiting resistor.

NOTE: Some vehicles have ***AUXILIARY*** receptacles for devices such as lap top computers, cell phones, etc. It is quite common for these receptacles to have current limiting resistors. Check the owner's manual or contact a dealer for specific vehicle information.

OPERATING THE PSR-2202A

1. Connect a properly tuned antenna and place the antenna on a ground plane.

2. Before connecting the power cord, be sure that the unit **ON/OFF** switch is in the **OFF** position.

3. Connect unit power cord to an appropriate DC source.

NOTE: The operating controls of the PSR-2202A are behind the access panel on the front of the repeater. Two Dzus fasteners in the upper corners secure the panel. Open the panel by rotating each fastener approximately one-half a turn counterclockwise.

4. Set the unit operating controls as follows:
   TX CH ……as required (select CH1 or CH2)
   RX CH ……as required (select 1 of 16)
   AGC/COMP……to match the transmitter
   NARROW/WIDE…to match the transmitter

5. Turn on the unit by placing the **ON/OFF** switch in the **ON** position.

6. From this point on, operation of the PSR-2202A is fully automatic. When a RF signal on the same frequency as the selected receive channel is detected, the repeater receiver section processes the signal and retransmits the signal on the selected repeater transmit frequency

7. When the PSR-2202A is properly transmitting a received signal, the **TX ON** LED will be illuminated.

8. When the received signal is no longer detected, the receiver section will automatically squelch. This will then turn off the repeater transmitter approximately 10 seconds later.

9. The unit will then remain in the standby mode until a subsequent signal is detected or you turn the unit off.

Programming PSR-2202A with SDC via RS232 port

Programming of transmit and receive frequencies of the PSR-2202A are made using ***AID*'s** SDC Version 1.5.8 or higher software. For specifics concerning hardware requirements, consult the SDC Instruction Manual.

The procedures for programming the PSR-2202A are as follows:

1. Make certain the computer and PSR-2202A are turned OFF".

2. Attach the programming cable (Catalog number 95000-03) to the serial port (DB9 connector) of the computer and to the programming port, DB15 connector of the PSR-2202A (center bottom of the control panel)

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   CAUTION: The supplied programming cable must be used to program the Repeater.
   DO NOT use a standard RS232 cable to program the repeater.

3. Turn the computer "ON".

4. Apply appropriate power to the PSR-2202A.

WARNING: To prevent damage to the equipment, the PSR-2202A should be connected to an antenna, dummy load or test lamp during programming.

5. Click on **Start / Programs / Surveillance Device Configurator / SDC**

6. If this is the first time powering up the computer, click on **View** menu and select **Options** to select the correct COM port (usually COM 1) and click on **OK**.

7. Upon initial turn-on, the software should default to **Device ID** and perform an AutoDetect (read function) provided that the connected PSR-2202A is powered up.

8. The **Device ID** window will show the following information:
   Serial Number
   Device ID

9. To read frequencies that are programmed into the PSR-2202A skip to step 26

10. Click on PRESET tab to begin assigning Transmit and Receive frequencies.

To assign Transmit frequencies follow steps 11 - 13.
To assign Receive frequencies follow steps 14 - 20.

11. Tab to the FREQUENCY section for Channel 1 or Channel 2 in the Transmit section of the screen display.

12. Enter the frequency for Transmit Channel 1 and / or Transmit Channel 2 as required. To move from field to field, use the TAB key ONLY.

NOTE: Maximum frequency spread between Transmit Channel 1 and Transmit Channel 2 is 2.0 MHz.

Frequencies must be in 2.5kHz increments.
Frequency will be rounded to nearest multiple of 2.5kHz.

13. Go to step 21.

FOLLOW STEPS 14 - 20 TO ASSIGN RECEIVE FREQUENCIES

14. Tab to the **FREQUENCY** column for Channel 1 in the Receive section of the screen display.

NOTE: As the PSR-2202A does not have a LCD display, changing the channel label has no effect.

15. Enter the frequency for receive channel 1.

NOTE: Maximum frequency spread between receive frequencies is 2.0 MHz. In other words, the maximum frequency spread between the lowest receive frequency and the highest receive frequency is 2.0 MHz.

Frequencies must be in 2.5kHz increments. Frequency will be rounded to nearest multiple of 2.5kHz.

16. Hit the **TAB** key two times to enter the frequency into the channel.

NOTE: Failure to hit the TAB twice after entering the frequency may result in the failure of the new frequency information being retained.

17. Repeat steps 14 - 16 to program receive frequencies for channels 2 - 15. If you desire to skip a channel, **TAB** through the fields to the desired channel.

18. To program channel 16, tab to the FREQUENCY column for Channel 16.

19. Enter the frequency for receive channel 16.

20. Hit the **REVERSE TAB** key (Shift key and TAB key) twice to enter the frequency in to the channel. Hitting the **REVERSE TAB** key will also cause the cursor to back up in to channel 15. This is normal.

NOTE: Any channel not programmed with a specific frequency should be programmed for an unused frequency within the allowed programming window of 2.0 MHz.

21. Review all entries to ensure the proper frequencies have been entered for both transmit and receive channels of the repeater.

NOTE: Successful download and "locking" of frequencies in the PSR-2202A will cause all "old" frequencies (transmit and receive) to be overwritten and lost. Ensure all transmit and receiver frequencies are populated and correct before downloading.

22. Click on the **DOWNLOAD** tab.

23. Click on the **DOWNLOAD** button.

The frequencies should now be downloaded to the repeater. Progress can be observed by the bar graph. **"Ready To Download"** will be replaced with **"Download Successful".**

If **"Download Successful"** does not appear, the pre sets have not been downloaded and you will have to try again. Check to ensure that the programming cable is attached properly to the PC and the PSR-2202A. Check to ensure that the PSR-2202A is turned on.

24. After observing a **"Download Successful",** turn the power to the PST-2202A **OFF** then **ON**, using the PSR-2202A **ON/OFF** switch to "lock" the new frequencies in the PSR-2202A.

NOTE: Failure to cycle the PSR-2202A power (OFF then ON) after downloading the new frequencies will result in the new frequencies to be ignored. The "old" frequencies will still be the active frequencies in the repeater.

Successful download and "locking" of frequencies in the PSR-2202A will cause all "old" frequencies (transmit and receive) to be overwritten and lost. Ensure all transmit and receiver frequencies are populated and correct before downloading.

25. To read frequencies that are programmed into the PSR-2202A, click on the READ tab.

26. Click on the READ button.

    The programmed frequencies in the PSR-2202A are now being read. Progress can be observed by the bar graph.

27. Click on the **PRESET** tab.

28. The transmit and receive frequencies that are "active" in the PSR-2202A will be displayed in the table.

29. If all settings are correct, turn the PSR-2202A **OFF**. If the settings are not correct, follow steps 11 -29 as appropriate.

30. Choose **FILE** and then **EXIT** to exit the SDC program.

31. Disconnect the PSR-2202A from the PC.

MAINTENANCE/TROUBLESHOOTING

If the PSR-2202A is inoperative, the following test procedure should be performed:

1. Equipment required: PSR-2202A Repeater, test lamp, an operational transmitter that is set to one of the receive frequencies of the repeater, and a FM receiver on one of the repeater transmit frequencies. *All equipment must have compatible channels to conduct this test*.

2. With the PSR-2202A's **ON/OFF** switch in the **OFF** position, connect the repeater test lamp to the antenna BNC connector on the front of the PSR-2202A. Connect the PSR-2202A power cable to an appropriate power supply.

3. Place the PSR-2202A's **ON/OFF** switch in the **ON position.**

4. With the transmitter's **ON/OFF** switch in the **OFF** position, connect the transmitter's antenna and install the batteries. Test the transmitter for proper operation using the test FM receiver to monitor voice transmissions.

4. (Continued) Move at least ten feet away from the repeater with the transmitter and place it in the **ON** position while observing the test lamp on the repeater.

5. When the transmitter is turned ON, the test lamp should illuminate. The lamp is illuminated by the RF energy from the repeater's transmitter. The test lamp should be constantly illuminated while the repeater's transmitter is ON to indicate proper operation of both the repeaters transmit and receive functions.

6. If the test lamp illumination is dim, flickering, inter mittent or not illuminated at all when the transmitter is ON, verify that the proper repeater transmit and receive channels have been selected.

   If this does not rectify the problem, verify that the proper frequencies have been programmed and are active in the PSR-2202A.

   If the problem still persists, it may indicate that the PSR-2202A's transmit or receive functions are not working properly.

7. If the PSR-2202A fails as outlined above, contact AID Customer Service to obtain a RMA # for the return of the unit.

8. When all testing is complete, turn off the transmitter, the FM receiver and the PSR-2202A. Disconnect the test lamp after the PSR-2202A has been turned off.

MISCELLANEOUS

1. The PSR-2202A utilizes a resettable, chemical fuse. In some cases, when this fuse opens it will automatically reset (close) when it “cools” down. This may take several minutes.

Compliance Statement (Part 15.19)

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

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.

Warning (Part 15.21)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure (OET Bulletin 65)

To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 30cm separation distance between the antenna and all persons.

NOTES

For Customer Use:
Enter below the serial number of your unit.
Retain this information for future reference.

Model No. _____

Serial No. _____

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