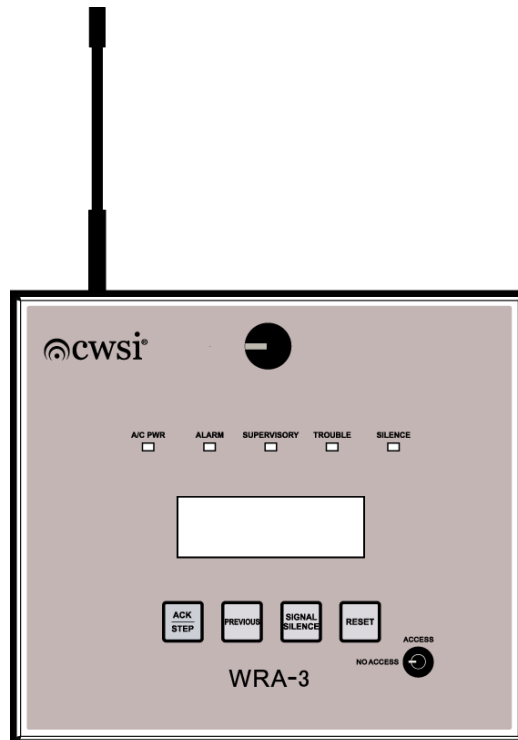# WRA-3(R)(LG) WIRELESS REMOTE ANNUNCIATOR

OPERATING and INSTALLATION INSTRUCTION MANUAL

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Introduction

This manual is intended for persons involved with the installation, maintenance and operation of the WRA-3 wireless remote annunciator. It is a comprehensive guide that provides details on product operation and should be kept for future reference. This manual consists of separate sections. Each section contains information in a manner as to be clear as possible. It is designed to provide all the information necessary to install, program and operate the equipment. Read and understand this manual prior to installing or operating the equipment. It is imperative that the installer understand the requirements of the Authority Having Jurisdiction (AHJ) and be familiar with the standards set forth by Underwriters Laboratories, NFPA 72 National Fire Alarm Code, and NFPA 70 National Electrical Code.

The model WRA-3 is a wireless remote annunciator manufactured by CWSI. The annunciator was designed and tested to comply with **NFPA 72 National Fire Alarm Code and UL 864 standard.**

FCC Statements

FCC Warning

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

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.

FCC Warning – RF Exposure

Important: When using this device, a certain separation distance between antenna and nearby persons has to be kept to ensure RF exposure compliance. in order to comply with the RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than [20cm].

Section 1 - Description and Features

1.1 Product Description

The CWSI WRA-3 is an intelligent addressable wireless fire alarm annunciator. It has a 4 x 20 character backlit lcd which will display alarm, supervisory and trouble signals from the control panels, devices and annunciator listed in the compatibility section of this manual. Additionally there are 5 front panel leds for visual indication of A/C power, Alarm, Supervisory, Trouble and Silence. The WRA-3 provides acknowledge, signal silence and system reset control functions via a membrane keypad. Operation of these keypad functions is protected by a key lock.

1.2 Features

➢ Bi-Directional RF communication
➢ 900 MHz Frequency Hopping Spread Spectrum format
➢ CRC data validation
➢ Rechargeable Lithium battery supplies 24 hour backup time
➢ Built in alert sounder
➢ Powered by Class 2 transformer
➢ 4 line 20 character backlit LCD display
➢ Power, Alarm, Supervisory, Trouble and Silence LED's
➢ Acknowledge, Previous, Signal Silence and Reset control buttons
➢ User keypad access key lock
➢ Hinged locked enclosure
➢ Easy site programming with SD card

1.3 Specifications

Power Source: 120 VAC 60Hz 2 Amp dedicated circuit

Battery: 3.7Vdc 3Ah lithium ion battery CWSI P/N BA-3.7V-3AH

Operating Temperature: 32 to 145 degrees F

Operating Humidity: 85% non-condensing

Transceiver Operating Frequency: 900 MHz band

Signal to Noise Ratio: Minimum Signal -100.2dBM   Maximum Noise -115.3dBM

Antenna Type: Omni

Transmission Format: Frequency Hopping – Spread Spectrum.

Dimensions: 7" high, 8" wide, 2 ¼" deep

Enclosure: Powder coated steel

Weight: 1 Lbs.

WRA-3 Ratings @ 3.7 Vdc: Standby 60ma.   Alarm 120ma.

Section 2 - Compatibility

2.1 Compatible Equipment and Accessories
The following UL Listed RF products are compatible with the WRA-3 annunciator:
Commercial Wireless Systems International, LLC
CP-3000A(DA) – Control Panel
AR-3A - Repeater
Smoke Detector Model 300 – Photo Electric Smoke Detector with Integral Sounder
Tandem Smoke Detector Model 301- Photo Electric Tandem Smoke Detector with Integral Sounder
Smoke Detector Model 302 – Photo Electric Smoke Detector without Sounder
Pull Station Model 310 – Manual Pull Station
Fire Transmitter Models - 340(TS) – N.O. EOL Supervised Transmitter
CO Detector Model 350 – Carbon Monoxide Detector with Integral Sounder

The following antennas are for use with the WRA-3 annunciator:
Commercial Wireless Systems International, LLC
Model OM-1 Omni – Isotropic gain 2.5 dBi
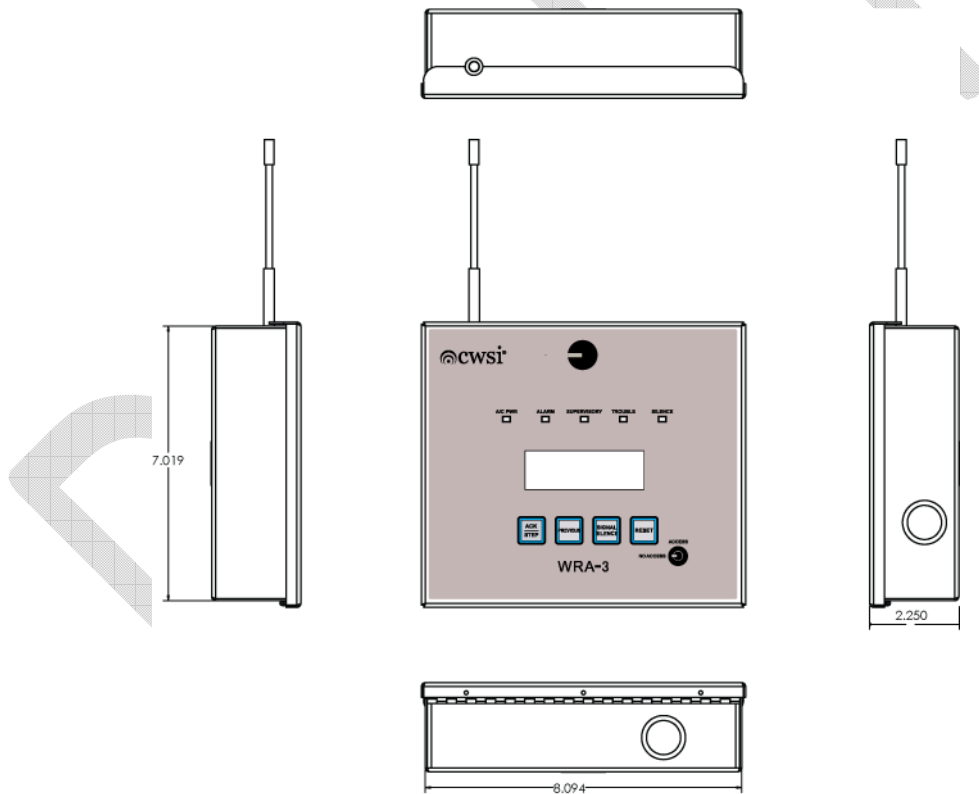
Section 3 - Installation

3.1 Preparing the Installation Site
A signal survey must be performed by a factory trained technician or authorized dealer prior to the installation of the WRA-3 annunciator. The signal survey determines an acceptable location to mount

the WRA-3 in order to communicate with the AR-3A repeaters and CP-3000A(DA) control panel. Refer to the Signal Survey section in this manual for the proper method to conduct a signal survey for this product.

During the survey, try to locate the WRA-3 annunciator close to available 120 Vac uninterruptible power. The WRA-3 is powered from CWSI model TR-12V-2A plug in transformer. The power connection must be installed in conduit. **Warning: The WRA-3 annunciator input power is 12Vac from the secondary of the TR-12V-2A. Do not connect 120Vac directly to the WRA-3 or the unit will be damaged.**

 When connecting primary A/C power always follow:
1- National Fire and Electrical Codes (NFPA 72 and NFPA 70)
2- Local Electrical and Fire Code requirements
3- Local AHJ (Authority Having Jurisdiction) requirements

## 3.2 Receiving and Unpacking the Equipment

Upon receiving the equipment, the carton should be inspected for damage, which may have occurred during shipment. Each package should be checked against the packing slip for completeness. Differences should be reported to CWSI immediately. If any product is suspected of damage it should be checked for proper operation or returned to CWSI.

3.3 Installing the WRA-3 Annunciator

WARNING: This equipment must be professionally installed by factory trained personnel. Use of an antenna other than listed in the compatibility section of this manual may be harmful to persons, void FCC or damage the equipment. Always attach an OM-1 antenna to the sma connector prior to applying power, enrolling or conducting a signal survey with the WRA-3.

The WRA-3 annunciator must be enrolled into a CP-3000A(DA) control panel and programmed to function properly. Enrollment can only be accomplished with the WRA-3 within reception range of the CP-3000A(DA) or an enrolled AR-3A repeater. Follow the enrollment instructions in the CP-3000A(DA) manual. After enrollment, it is recommended to hold the annunciator in the intended mounting location and verify a good signal survey prior to permanently mounting the unit. Upon enrollment and conducting a signal survey the unit can be mounted in its intended location. The following must be considered and or adhered to when mounting the unit. The maximum repeater depth between any annunciator and any device is 20. The panel must be included in the path between the annunciator and the furthest device when figuring the repeater depth. There is a limit of 8 annunciators per CP-3000A(DA).

1 – All wiring should comply with national and/or local electrical codes. Unless otherwise specified, wire should be 18 gauge copper with 600 Volt insulation. Shielded wire is preferred.
2 – This unit is intended to be mounted in indoor dry areas. Avoid dusty, wet and corrosive locations.
3 – Provide adequate space surrounding the unit to allow for;
**   a - The hinged cover to be completely opened for easy access to internal components and wiring.**
**   b - The connection of conduit to the desired cabinet location.**
**   c – The attachment of the omni antenna to the antenna sma connector.**
4 – Avoid electrically noisy locations such as main electrical and transformer rooms, computer rooms, telephone switching rooms, etc.

WRA-3

J23

Figure 1

xfrmr
box

TR-12V-2A
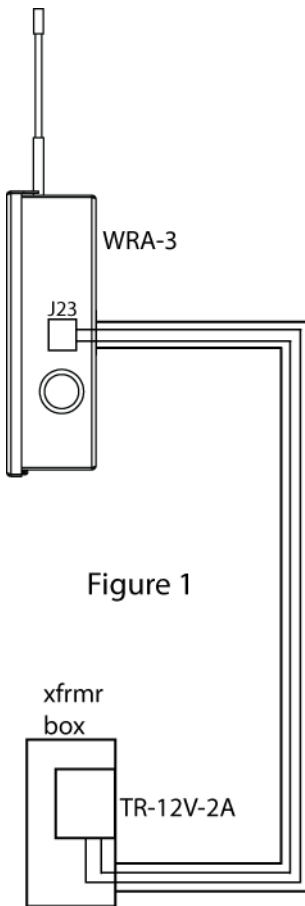
Unlock the WRA-3 cover and open the unit. Carefully verify that the unit is not damaged and the printed circuit board is secured in the enclosure. Hold the WRA-3 in its intended position, verify leveling then mark the location of the upper corner mounting keyholes. Using adequate mounting screws and anchors, secure the WRA-3 annunciator to the mounting surface. Be sure to install screws in the two lower mounting holes. Additionally the annunciator can be secured to a flush mount 4" gang box if desired using the 4 holes in the back box. **WARNING: Make sure A/C supply is turned OFF prior to proceeding with A/C connection.** The required supply to the TR-12V-2A primary is 120 VAC 60Hz 2 Amps. Follow all applicable electrical codes. Install conduit from the WRA-3 to a Honeywell model 4165 transformer enclosure attached to a 120Vac unswitched outlet located in the same room (Figure 1). Follow the instructions provided with the transformer enclosure. Run a two conductor wire from the TR-12V-2A secondary screw terminals to the terminal block J23 on the WRA-3 board. Place the anti tamper washer over the small end of the antenna then screw the OM-1 omni antenna to the SMA1 antenna connector making sure the washer is on the inside of the front cover lip. Do not over tighten the antenna. Place the CP-3000A(DA) in enrollment mode then plug in the transformer and connect the backup battery to the BT1 connector on the WRA-3. Close and lock the cover making sure the anti tamper washer is inside the enclosure. The annunciator leds will light, sounder will beep and the lcd display will indicate initialization. Within one minute the annunciator should enroll and exit initialization. If the annunciator doesn't enroll within 90 seconds a "Not Enrolled" message will be shown on the lcd.

If you see this message:

    1. Make sure the annunciator is in reception range of a repeater or the control panel.

    2. Confirm the CP-3000A(DA) is in enrollment mode.

    3. Clear the annunciator base code as described in the info and maintenance section of this manual.

After the issue is corrected press the reset button on the annunciator board to start the initialization routine again.

After the annunciator is enrolled it will transmit a power up reset trouble to the CP-3000A(DA). This is expected on power up and does not indicate trouble with the annunciator. A checksum trouble will also be present on the CP-3000A(DA) and annunciator. The checksum trouble can only be cleared by programming the annunciator with the installation site data. Refer to the programming section of this manual and the CP-3000A(DA) manual.

3.4 The Backup Battery

The annunciator uses a 3.7Vdc 3Ah (CWSI p/n BA-3.7V-3AH) lithium ion battery for backup power in the event of primary A/C power failure. The battery will supply a minimum of 24 hours of standby operation followed by 5 minutes of alarm. The battery plugs into the BT1 connector (figure 3). The battery is periodically tested under load. A low battery trouble will be transmitted to the CP-3000A(DA) every 90 seconds if the battery is low or disconnected. If the battery is low or bad the low battery trouble will keep reporting until it is charged or replaced with a charged battery.

To replace the battery:

    1. Disconnect the battery from connector BT1

2. Cut the tie wraps securing the battery.

3. Replace the battery with a CWSI p/n BA-3.7V-3AH battery only. **Warning: Use of any other battery may cause damage/harm to the unit, battery or user.**

4. Secure the new battery with new tie wraps supplied with the replacement battery and cut the excess length of the tie wrap.

5. Connect the battery to the BT1 connector and reset the control panel.

The battery and charger voltage can be viewed in the voltage information screen. These voltages are readings under load. Refer to the Info and Maintenance section of this manual.
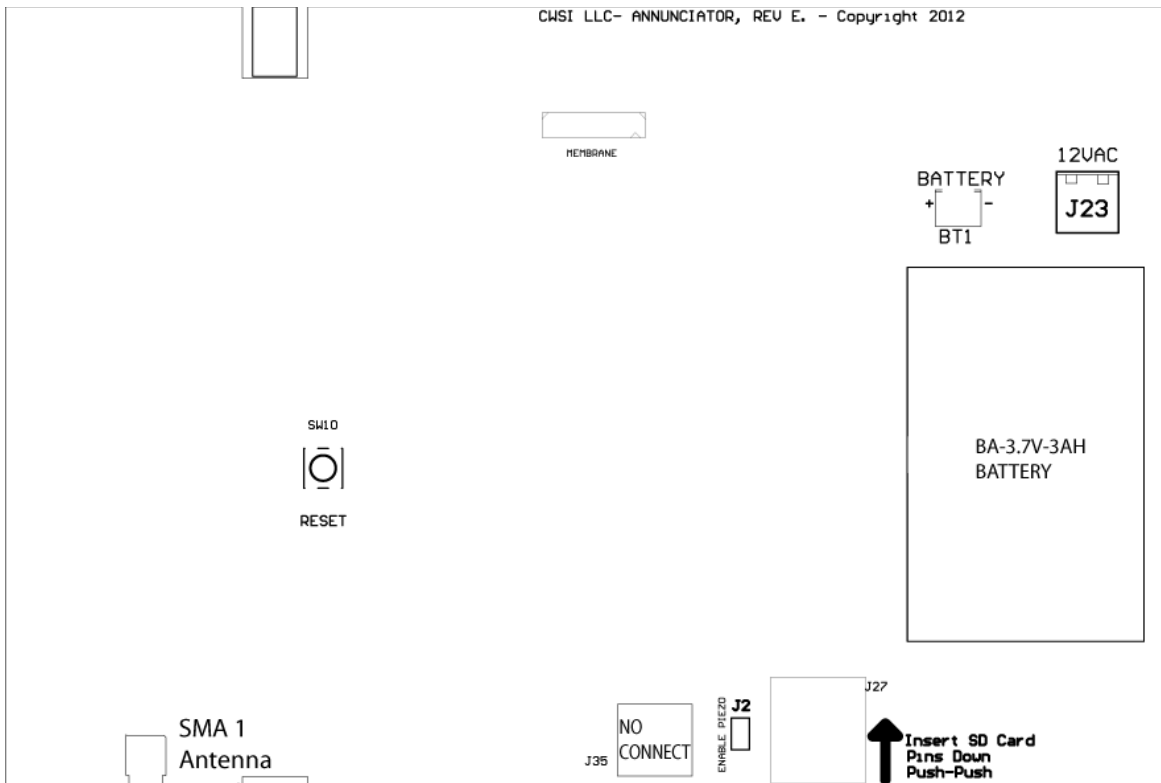

Figure 2

Section 4 – User Interfaces

This section will explain LED, LCD, Sounder and Switch functions.

4.1 LEDS

The annunciator has 5 led indicators as follows:

A/C PWR – This green led indicates the status of the incoming A/C voltage. On steady indicates proper A/C voltage is present. Flashing indicates low or no A/C voltage present.

ALARM – This red led indicates an alarm condition exists. This led will flash when an alarm is present on the annunciator. Acknowledging the alarm at any enrolled annunciator or the control panel will turn the led from flashing to steady on. If a new alarm is received the led will begin to flash again.

SUPERVISORY - This yellow led indicates a supervisory condition exists. This led will flash when a supervisory condition is present on the annunciator. Acknowledging the supervisory at any enrolled annunciator or the control panel will turn the led from flashing to steady on. If a new supervisory is received the led will begin to flash again.

TROUBLE – This yellow led indicates a trouble condition exists. This led will flash when a trouble condition is present on the annunciator. Acknowledging the trouble at any enrolled annunciator or the control panel will turn the led from flashing to steady on. If a new trouble is received the led will begin to flash again.

SILENCE – This led will light when the signal silence button on any enrolled annunciator or the control panel is pressed to deactivate active outputs programmed to deactivate with this button.

4.2 LCD

The 4 line 20 character backlit lcd displays all the alpha numeric information such as alarm, supervisory, trouble, menus etc. needed for the operator to properly respond and interface with the annunciator. The backlight will be on continuous during any off normal condition when A/C is present. During battery operation the backlight will be on continuous during alarm and time out in 30 seconds when any other condition is present.

4.3 Sounder

The sounder is used as an audible indicator for alarm, supervisory, trouble and signal survey. The sounder can be disabled by removing J2. **Note: The sounder must be enabled for UL installations.**

4.4 Buttons

There are four buttons which are enabled and disabled by the access key switch. The buttons will only function if the access key switch is in the access position. Note: The key cannot be removed from the lock when it's in the access position.

The buttons and their functions are as follows:

ACK/STEP – Acknowledges any unacknowledged alarm, supervisory and trouble signals. Silences the sounder and makes any flashing ALARM, SUPERVISORY and TROUBLE leds turn on steady. After acknowledging this button will step or scroll forward through the active events.

PREVIOUS – Steps backwards through acknowledged active events.

SIGNAL SILENCE – Acknowledges any unacknowledged events and silences any NAC relays programmed on the CP-3000A(DA) to deactivate with this button. The SILENCE led will light, the lcd will display Signals Silenced and the annunciator(s) and CP-3000A(DA) sounder will silence. Any flashing ALARM, SUPERVISORY or TROUBLE leds will turn on steady. Refer control panel manual for further information.

RESET – Resets the CP-3000A(DA), annunciator(s), active relays, nacs etc. to the normal condition. Refer to the control panel manual for further information.

Section 5 – Operation

5.1 Overview
The WRA-3 annunciator is designed to be a display and control extension of the CP-3000A(DA) control panel at up to 8 locations within the installation network. Control functions include acknowledging, scrolling, signal silence and reset. The lcd display will show alarm, supervisory and trouble signals with the highest priority signal displayed. Each annunciator is independently monitored for troubles including signal integrity, programming, power supply, charger, tamper etc. A complete list of trouble signals is included in this section. The annunciator is programmed by inserting a standard sd card which has been programmed with the panel information via the WRA-3 programmer software.

5.2 Normal standby
When the installation has no off normal conditions the annunciator will display the system normal screen shown below. The system time shown on the CP-3000A(DA) is also shown on the annunciator in 24 hour format.

```
            CWSI
        System Normal
          CP3000A
           14:30
```

5.3 Alarm, Supervisory and Trouble annunciation
When an alarm is received:
  1. The Alarm led will flash.
  2. The sounder turns on steady.
  3. The lcd shows the alarm level, device type, description, serial number and number of events in process.
  4. Press ACK/STEP to acknowledge active events. Flashing leds turn on steady and sounder silences
  5. Press SIGNAL SILENCE to silence any active nac's if programmed.
  6. Press RESET to reset the system back to normal standby.

Typical alarm screen

```
Alarm A                1/8
Pull Station         4003cb
West Stairwell
```

When a supervisory is received:
  1. The Supervisory led will flash.

2. The sounder turns on and off at a one second rate.

3. The lcd shows Supervisory, device type, description, serial number and number of events in process.

4. Press ACK/STEP to acknowledge active events. Flashing leds turn on steady and sounder silences.

5. Press RESET to reset the system back to normal standby.

Typical supervisory screen

Supervisory	**1/8**
PIV	**30018f**
South Building	

When a trouble is received:

1. The Trouble led will flash.

2. The sounder beeps once every 10 seconds.

3. The lcd shows system trouble. Alternatively when there is a trouble with the annunciator being viewed it will show the specific trouble condition.

4. Press ACK/STEP to acknowledge active events. Flashing leds turn on steady and sounder silences. The sounder will beep again 4 hours after a trouble is acknowledged if the system has not been reset.

5. Press RESET to reset the system back to normal standby.

Typical trouble screens

System Trouble

WRA-3 Trouble
Tamper
ID:680039

Pressing ACK/STEP will first acknowledge all unacknowledged events. Pressing ACK/STEP or PREVIOUS when acknowledged events are present will scroll through those events one at a time. The lcd will display the highest priority oldest event until the user acknowledges. A new higher priority event received after acknowledging will not be automatically shown on the display. The user will need to manually scroll to the new event. Trouble will always be shown as the last event in the list.

The x/x numbers on first line of the display indicate "event being viewed/total events". The event being viewed number will change as the user scrolls.

Notes:

1. The access key switch must be in the access position for the annunciator control buttons to function.

2. Scrolling through events will only affect the local annunciator which the user is directly interfacing with.

3. Detailed trouble shown in the alternate screen above will only be displayed on the annunciator which has that trouble condition. Any other annunciators will simply show system trouble.

5.4 Trouble signals

This section contains a list of trouble signals that can be transmitted by the annunciator. Possible causes are given to help the technician quickly solve the issue. The annunciator is continuously monitored for proper operation. If a problem arises then a trouble signal will be sent to the control panel within 200 seconds indicating the trouble condition. The trouble will be retransmitted every 200 seconds until the problem is resolved. Only an A/C loss trouble is self restoring. All other troubles will have to be reset at the CP-3000A(DA) and will not self restore.

1. **Checksum Bad -** Caused by a mismatch of programming information between the CP-3000A(DA) and the annunciator. Will also be displayed while an sd card remains in the WRA-3 sd card slot. Program the annunciator. Refer to the programming section of this manual.
2. **Test Failure** – Displayed by the CP-3000A(DA) when an annunciator polling transmission is not received within 200 seconds. Possible causes are a missing antenna, break in annunciator network communications or component failure in the annunciator. Check the annunciator for proper communication with the network.
3. **Hardware Fault –** Caused by a fault with the internal circuitry of the annunciator. The annunciator will require factory service.
4. **Tamper –** Caused by opening the front cover of the annunciator or removal from its mounting position. Make sure the case is closed and the unit is in the correct mounting position.
5. **Charger Failure** – Caused by problem in battery charging circuit. Factory service is required.
6. **Low Battery** – Caused by battery voltage being too low or battery failing to pass load test. Charge or change the battery.
7. **Power Loss** – Caused by low or no A/C voltage present at the J23 terminal block. Check for proper A/C supply into and from the TR-12V-2A.
8. **Power Up Reset -** Caused when the annunciator processor resets its program. This signal is normal the first time the annunciator is powered up. It should not reoccur after the annunciator has power applied. If it does then the unit requires factory service.

5.5 Test mode

When the CP-3000A(DA) is in test mode the annunciator(s):
1. Display "PANEL IN TEST MODE" in the first line of the lcd.
2. Turn on the TROUBLE led steady.
3. Beep the sounder once every 10 seconds.
4. Display Alarm and Supervisory events. Troubles will not be displayed except on an affected annunciator.

Typical test mode screen

```
 PANEL IN TEST MODE
Alarm A              1/1
CO Det.          6003d2

```

Multiple events can be scrolled using the ACK/STEP and PREVIOUS buttons. Pressing RESET will exit system test mode otherwise the system will automatically exit test mode 4 hours after being put into test.

Section 6 – Programming

6.1 General

The annunciator must be programmed with information about the installation in order to display alarms, supervisory and troubles correctly. A checksum trouble indicates the annunciator does not have the same information as the CP-3000A(DA) it's enrolled into. The annunciator must be programmed to clear this trouble condition. Programming is accomplished by downloading installation information from the CP-3000A(DA) using the WRA-3 programming pc application and uploading it to the annunciator as explained in this section.

When the annunciator is first enrolled into the CP-3000A(DA) it will display a checksum bad trouble message because its device and programming information does not match the CP-3000A(D). After the annunciator is programmed the checksum can be cleared. There are however several installation changes which will initiate a checksum bad trouble and require the annunciator(s) to be reprogrammed.

The following changes will cause a checksum trouble and require reprogramming of the annunciator(s):
      1. A change to any of the editable parameters of any device or repeater on the device edit screen of the CP-3000A(DA). The checksum will occur after saving the change(s).
      2. Enrolling or deleting a device, annunciator or repeater on the CP-3000A(DA).
      3. Changing the supervisory on/off setting for alarm C on the CP-3000A(DA).
      4. Changing the point I.D. of a device. Deleting and enrolling the same device would cause this.

Note: It is advisable to program the annunciator after the entire installation and zone programming is complete.

Changing any other programming options on the CP-3000A(DA) will not cause a checksum trouble.

6.2 WRA-3 Software programming tool

The WRA-3 programmer is a Windows PC application (WRA3Programmer-1.0.0.exe) used to program the WRA-3 with the current installation information. The WRA-3 programming tool is included in the WRA3-PK programming kit sold separately. The kit includes the software, micro sd card and usb adapter. The WRA-3 programming tool is compatible with Windows XP 32 bit, Windows 7 32/64 bit and Windows 8 32/64 bit. Double click the installation program and follow the prompts. A desktop icon will be created.

6.3 Programming the WRA-3

When the programming tool installation is complete double click the WRA-3 Programmer desktop icon. The first step is to download the installation information from the CP-3000A(DA). Connect a USB cable from the computer to the CP-3000A(DA). Refer to the CP-3000A(DA) for the connector location.

WRA-3 programmer front screen
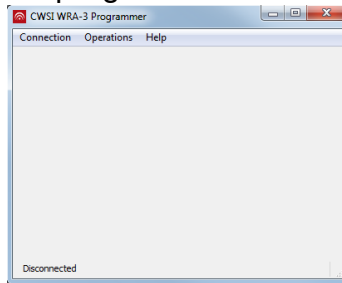
Click on the connection top menu item and then click connect. The word connected will appear in the bottom left corner of the programmer screen when the control panel connects to the computer. If the panel cannot connect check that a ubs connection shows up in Windows device manager when the panel is connected. Also check the usb connection between the computer and panel.

Once connected choose the Operations top menu item and click on Export to Annunciator. Save the file to a formatted micro sd card. Alternatively save the file on the computer then copy the file to a formatted sd card. The file will automatically be named as annunciator.bin.

Exporting the file
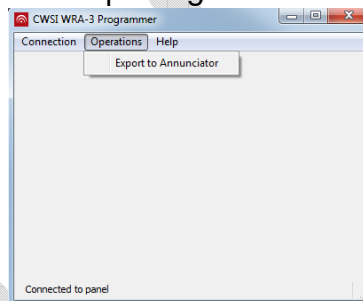
Successful file save
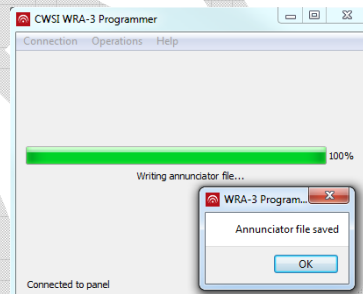
Insert the sd card with the annunciator.bin file on it into the J27 sd card slot marked "Insert SD Card" on the annunciator(s) to be programmed (Figure 2). The contact pins should be facing down. Push the card all the way into the connector until it locks into the sd card holder. A checksum bad trouble will be transmitted to the CP-3000A(DA). The annunciator trouble led will flash and the sounder will beep a trouble condition until the sd card is removed.

Flip the front cover of the WRA-3 up so the lcd can be viewed. The lcd should be displaying a "Program Device Table" message. Press the SIGNAL SILENCE button to start the programming.

Program device table screen

```
Program Device
Table?
Press Sil to Program
Remove SD to reset
```

When programming is complete the lcd should display success as shown below. Remove the sd card by pushing it in then release. The WRA-3 will initialize and send a power up reset trouble when it connects to the network. All of the annunciators in the installation must be programmed.

Program successful screen

```
Success


Remove SD to Reset
```

In the event the programming is not successful there will be a Failed Program message displayed with a reason. The reasons are listed below with suggestions for correction. Follow the corrective action and try programming again.

1. SD Card Invalid – Remove and replace SD card. Reformat the SD card. Try a new SD card.
2. Prog File Not Found – Verify the annunciator.bin file is on the SD card. Format the SD card then rewrite the file again with the WRA-3 programmer.
3. Error Reading file - Verify the annunciator.bin file is on the SD card. Format the SD card then rewrite the file again with the WRA-3 programmer. Try a new SD card.

Section 7 – Info and Maintenance

7.1 Menus

The info and maintenance menu provides general annunciator information such as software revision level, serial number, base code as well as battery and charger voltage. It also has options for clearing the base code and performing a signal survey. To enter the menu press turn the access key switch to the access position then hold the ACK/STEP and SIGNAL SILENCE buttons simultaneously for 5 seconds. The WRA-3 will beep and light all of the leds. After entering menu mode the first screen will show the software rev level of the annunciator. The different menu screens can now be selected by pressing ACK/STEP button.
The menus are as follows:

1. Network Info – This screen shows the ID (serial number) of the annunciator as well as the base code of the CP-3000A(DA) it is reporting to.
2. Signal Survey – This menu allows the installer to conduct a signal survey from the annunciator. Refer to the signal survey section of this manual for instructions on conducting a signal survey.
3. WRA-3 Voltages – This screen shows the latest voltage reading on the battery and battery charger. The voltages are as read under load and displayed in millivolts. The readings are updated

every 180 seconds. A battery is considered low when this reading is less than 3200mv and a charger fault will be trouble will be transmitted if the charger is less than 3700mv. If a charger fault is present the mv reading will be 0 since the charger will be shut off in the event of a charger fault. A (!) will be displayed to the right of a voltage reading if that voltage reading is not in range. Sample screens are shown below. **Note: The numbers shown below are examples and may differ from your display.**

Normal Voltage screen

WRA-3 Voltages
Battery: 3700 mv
Charger: 4205 mv
ACK>

Low battery voltage screen

WRA-3 Voltages
Battery: 3100 mv (!)
Charger: 4205 mv
ACK>

Charger Fault voltage screen

WRA-3 Voltages
Battery: 3700 mv
Charger: 4005 mv (!)
ACK>

4. Clear Base Code - This screen allows the user to clear the base code (network code) assigned to the annunciator when it is enrolled to a CP-3000A(DA). This will allow the annunciator to be enrolled and used with another CP-3000A(DA). Press the SIGNAL SILENCE when on this screen to erase the base code. **Warning: Do not press the SIGNAL SILENCE button unless you are sure you want to erase the base code as no additional confirmation will be asked.**

The user can exit the menu mode any time or automatically by:
1. 1 minute without any activity.
2. Receipt of an Alarm, Supervisory or trouble signal.
3. Pressing the RESET button.

Section 8 - Signal Survey

8.1 Installation Survey

The test must be performed before and after mounting the annunciator. The signal survey will insure the annunciator has good communication signal strength with the network. The annunciator must be enrolled to the CP-3000A(DA) and in communication range of an enrolled AR-3A repeater or the CP-3000A(DA). Follow the enrollment procedure in this and the CP-3000A(DA) manual IM-C3KA(DA). A survey can also be performed with an AR-3A repeater in survey mode. Refer to the AR-3A manual IM-AR-3A for more information.

After the annunciator is enrolled and communicating with the network select the signal survey screen in the info and maintenance menu as explained in section seven of this manual. The survey screen will look as shown below when first viewing it.

Survey Screen before First survey

```
Signal Survey
Ready


                        ACK>
```

The word "ready" indicates the annunciator has communications with the network. If "not ready" is displayed the annunciator will not perform a survey as it is not in communication with the CP-3000A(DA) or an enrolled repeater.

Press the SIGNAL SILENCE button and the annunciator will beep and the following screen will be displayed.

Signal Survey after first survey

```
Signal Survey
Linked to I.D. xx
Good survey:  xx%
                        ACK>
```

The Linked to I.D. shows the last two characters of the repeater or CP-3000A(DA) the annunciator is linked to. The next line shows if the survey is good or bad based on a percentage of signal strength read during the survey signal communication. A number of 68% or higher will display a "Good Survey" message and the sounder will beep twice. Anything less than 68% will display a "Bad Survey" message and the sounder will emit a 2 second continuous tone. Press the SIGNAL SILENCE button to perform additional surveys. The user should wait 2 seconds after the survey result prior to conducting the next survey. 5 or more good surveys in a row should be received before accepting the location as being good to mount the annunciator. If a bad survey is received try moving the annunciator until 5 good surveys in a row are received. Once an acceptable location is found the annunciator can be mounted as outlined in the installation section of this manual.

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