

# MAXSYS®

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## **RF4164-433 v4.0** • Installation Manual

*WARNING: This manual contains information on limitations regarding product use and function and information on the limitations as to liability of the manufacturer. The entire manual should be carefully read.*

*This RF4164-433 V4.0 receiver version is currently supported by all PC4020 DLS-3 downloading files.*

# Important Programming Notes

- The Wireless Device Fail Time (Section [001307]) in the panel is set to 3:00 hours by default. For a North American 433MHz system, the recommended setting for Device Fail Time is 24:00 hours. (08:00 hours minimum).
- The Wireless Device Fail Time (Section [001307]) in the panel is set to 3:00 hours by default. For a 433MHz European system, the recommended setting for the Device Fail Time is 02:30 hours to meet regulations.
- RF Jam Detect (Section [000200]) in the panel is disabled by default. ***This option needs to be turned ON for UL/ULC/CE installations.***

## FCC COMPLIANCE STATEMENT

**CAUTION:** CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY DIGITAL SECURITY CONTROLS COULD VOID YOUR AUTHORITY TO USE THIS EQUIPMENT.

This equipment generates and uses radio frequency energy and if not installed and used properly, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for Class B device in accordance with the specifications in Subpart "B" of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in any residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to television or radio reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna
- Relocate the alarm control with respect to the receiver
- Move the alarm control away from the receiver
- Connect the alarm control into a different outlet so that alarm control and receiver are on different circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the FCC helpful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402, Stock # 004-000-00345-4.

DSC erklærer herved at denne komponent overholder alle viktige krav samt andre bestemmelser gitt i direktiv 1999/5/EC.

Por este meio, a DSC, declara que este equipamento está em conformidade com os requisitos essenciais e outras determinações relevantes da Directiva 1999/5/EC.

\*DSC bekræfter herved at denne apparat opfylder de væsentlige kravene och andra relevanta bestämmelser i Direktivet 1999/5/EC\*.

Con la presente la Digital Security Controls dichiara che questo prodotto è conforme ai requisiti essenziali ed altre disposizioni rilevanti relative alla Direttiva 1999/05/CE.

Por la presente, DSC declara que este equipo está en conformidad con los requisitos esenciales y otros requisitos relevantes de la Directiva 1999/5/EC.

Hierdurch erklärt DSC, daß dieses Gerät den erforderlichen Bedingungen und Voraussetzungen der Richtlinie 1999/5/EC entspricht.

\*Αιτι του παρόντος, η DSC, δηλώνει ότι αυτή η συσκευή είναι σύμφωνη με τις ουσιαστικές απαιτήσεις και με άλλες τις άλλες διατάξεις σημαντικές της Οδηγίας 1999/5/ΕΚ\*.

Hierbij verklaart DSC dat dit toestel in overeenstemming is met de eisen en bepalingen van richtlijn 1999/5/EC.

Par la présente, DSC déclare que cet article est conforme aux exigences essentielles et autres relevantes stipulations de la directive 1999/5/EC.

DSC vakuuttaa jälleen täyttävän direktiivin 1999/5/EC:näissät vaatimukset.

Hereby, DSC, declares that this device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

**The complete R&TE Declaration of Conformity can be found at [http://www.dsc.com/listings\\_index.aspx](http://www.dsc.com/listings_index.aspx).**

**IMPORTANT:** This equipment shall be installed by Service Persons only (service person is defined as a person having the appropriate technical training and experience necessary to be aware of hazards to which that person may be exposed in performing a task and of measures to minimize the risks to that person or other persons). It shall be installed and used within an environment that provides the pollution degree max 2, over voltages category II, in non-hazardous, indoor locations only .

This manual shall be used in conjunction with the Control Panel Installation Manual.

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## INDUSTRY CANADA STATEMENT

This class B digital apparatus meets all requirements of the Canadian interference-causing equipment regulations. Cet appareil numérique de la Classe B respecte toutes les exigences de règlement sur le matériel brouilleur du Canada.

The term 'IC,' before radio certification number only signifies that Industry Canada technical specifications were met.

## **WARNING Please Read Carefully**

### **Note to Installers**

This warning contains vital information. As the only individual in contact with system users, it is your responsibility to bring each item in this warning to the attention of the users of this system.

### **System Failures**

This system has been carefully designed to be as effective as possible. There are circumstances, however, involving fire, burglary, or other types of emergencies where it may not provide protection. Any alarm system of any type may be compromised deliberately or may fail to operate as expected for a variety of reasons. Some but not all of these reasons may be:

#### **■ Inadequate Installation**

A security system must be installed properly in order to provide adequate protection. Every installation should be evaluated by a security professional to ensure that all access points and areas are covered. Locks and latches on windows and doors must be secure and operate as intended. Windows, doors, walls, ceilings and other building materials must be of sufficient strength and construction to provide the level of protection expected. A reevaluation must be done during and after any construction activity. An evaluation by the fire and/or police department is highly recommended if this service is available.

#### **■ Criminal Knowledge**

This system contains security features which were known to be effective at the time of manufacture. It is possible for persons with criminal intent to develop techniques which reduce the effectiveness of these features. It is important that a security system be reviewed periodically to ensure that its features remain effective and that it be updated or replaced if it is found that it does not provide the protection expected.

#### **■ Access by Intruders**

Intruders may enter through an unprotected access point, circumvent a sensing device, evade detection by moving through an area of insufficient coverage, disconnect a warning device, or interfere with or prevent the proper operation of the system.

#### **■ Power Failure**

Control units, intrusion detectors, smoke detectors and many other security devices require an adequate power supply for proper operation. If a device operates from batteries, it is possible for the batteries to fail. Even if the batteries have not failed, they must be charged, in good condition and installed correctly. If a device operates only by AC power, any interruption, however brief, will render that device inoperative while it does not have power. Power interruptions of any length are often accompanied by voltage fluctuations which may damage electronic equipment such as a security system. After a power interruption has occurred, immediately conduct a complete system test to ensure that the system operates as intended.

#### **■ Failure of Replaceable Batteries**

This system's wireless transmitters have been designed to provide several years of battery life under normal conditions. The expected battery life is a function of the device environment, usage and type. Ambient conditions such as high humidity, high or low temperatures, or large temperature fluctuations may reduce the expected battery life. While each transmitting device has a low battery monitor which identifies when the batteries need to be replaced, this monitor may fail to operate as expected. Regular testing and maintenance will keep the system in good operating condition.

#### **■ Compromise of Radio Frequency (Wireless) Devices**

Signals may not reach the receiver under all circumstances which could include metal objects placed on or near the radio path or deliberate jamming or other inadvertent radio signal interference.

#### **■ System Users**

A user may not be able to operate a panic or emergency switch possibly due to permanent or temporary physical disability, inability to reach the device in time, or unfamiliarity with the correct operation. It is important that all system users be trained in the correct operation of the alarm system and that they know how to respond when the system indicates an alarm.

#### **■ Smoke Detectors**

Smoke detectors that are a part of this system may not properly alert occupants of a fire for a number of reasons, some of which follow. The smoke detectors may have been improperly installed or posi-

tioned. Smoke may not be able to reach the smoke detectors, such as when the fire is in a chimney, walls or roofs, or on the other side of closed doors. Smoke detectors may not detect smoke from fires on another level of the residence or building.

Every fire is different in the amount of smoke produced and the rate of burning. Smoke detectors cannot sense all types of fires equally well. Smoke detectors may not provide timely warning of fires caused by carelessness or safety hazards such as smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches or arson.

Even if the smoke detector operates as intended, there may be circumstances when there is insufficient warning to allow all occupants to escape in time to avoid injury or death.

#### **■ Motion Detectors**

Motion detectors can only detect motion within the designated areas as shown in their respective installation instructions. They cannot discriminate between intruders and intended occupants. Motion detectors do not provide volumetric area protection. They have multiple beams of detection and motion can only be detected in unobstructed areas covered by these beams. They cannot detect motion which occurs behind walls, ceilings, floor, closed doors, glass partitions, glass doors or windows. Any type of tampering whether intentional or unintentional such as masking, painting, or spraying of any material on the lenses, mirrors, windows or any other part of the detection system will impair its proper operation.

Passive infrared motion detectors operate by sensing changes in temperature. However their effectiveness can be reduced when the ambient temperature rises near or above body temperature or if there are intentional or unintentional sources of heat in or near the detection area. Some of these heat sources could be heaters, radiators, stoves, barbecues, fireplaces, sunlight, steam vents, lighting and so on.

#### **■ Warning Devices**

Warning devices such as sirens, bells, horns, or strobes may not warn people or waken someone sleeping if there is an intervening wall or door. If warning devices are located on a different level of the residence or premise, then it is less likely that the occupants will be alerted or awakened. Audible warning devices may be interfered with by other noise sources such as stereos, radios, televisions, air conditioners or other appliances, or passing traffic. Audible warning devices, however loud, may not be heard by a hearing-impaired person.

#### **■ Telephone Lines**

If telephone lines are used to transmit alarms, they may be out of service or busy for certain periods of time. Also an intruder may cut the telephone line or defeat its operation by more sophisticated means which may be difficult to detect.

#### **■ Insufficient Time**

There may be circumstances when the system will operate as intended, yet the occupants will not be protected from the emergency due to their inability to respond to the warnings in a timely manner. If the system is monitored, the response may not occur in time to protect the occupants or their belongings.

#### **■ Component Failure**

Although every effort has been made to make this system as reliable as possible, the system may fail to function as intended due to the failure of a component.

#### **■ Inadequate Testing**

Most problems that would prevent an alarm system from operating as intended can be found by regular testing and maintenance. The complete system should be tested weekly and immediately after a break-in, an attempted break-in, a fire, a storm, an earthquake, an accident, or any kind of construction activity inside or outside the premises. The testing should include all sensing devices, keypads, consoles, alarm indicating devices and any other operational devices that are a part of the system.

#### **■ Security and Insurance**

Regardless of its capabilities, an alarm system is not a substitute for property or life insurance. An alarm system also is not a substitute for property owners, renters, or other occupants to act prudently to prevent or minimize the harmful effects of an emergency situation.

# Introduction

## S E C T I O N 1

The RF4164-433 is a wireless signal receiver for use with Maxsys PC4020 panels. The RF4164-433 receives signals from DSC 433MHz wireless devices.

**Install up to eight RF4164-433 v4.0 receivers:** If you are installing a PC4020 or higher system, you can enroll up to eight RF4164-433 wireless receivers. This will give you a greater range in which to install wireless devices. It will also allow you to install backup wireless receivers with overlapping ranges, to provide increased security for the wireless zones on the system.

### 1.1 Before You Begin

This manual describes how to install, program and maintain the RF4164-433 v4.0 on a PC4020 Security System. You should have completed the following steps in your PC4020 installation before you install the RF4164-433 module:

1. Plan the installation and wiring of the PC4020 system (see *PC4020 Installation Manual*, Section 2: Installation and Wiring)
2. Install the control panel and at least one keypad to use for programming (see *PC4020 Installation Manual*, Section 3: How to Program)
3. Install and enroll all hardwired zone expander modules (PC4108 or PC4116) (see *PC4020 Installation Manual*, Section 4: Module Enrollment).

You can program the RF4164-433 from a PC4020 system LCD keypad or using DSC downloading software (DLS-3 or higher). See the *PC4020 Installation Manual*, Section 3 "How to Program".

### 1.2 How to Use This Manual

To install and set up the RF4164-433 and wireless devices, follow these steps:

1. Enroll and temporarily mount the RF4164-433 module (see *Section 2*)
2. Enroll and program wireless devices using zones and wireless keys (see *Section 3*)
3. Complete zone and other programming on the system (see *Sections 4 and 5*)
4. Test the placement of all the wireless devices (see *Section 6*)
5. Permanently mount the RF4164-433 receiver and wireless devices (see *Section 6*)

To replace or delete wireless devices already enrolled, see *Section 4*.

For additional information on wireless motion detectors and wireless keys, see *Sections 7 and 8*.

For help with troubleshooting, see *Section 9*.

Record the zone or slot and serial numbers of all wireless devices, and other programming in the *Programming Worksheets* section at the end of the manual.

### PC4020 Programming

All programming sections in this manual are referred to by reference number. A detailed description of PC4020 programming is in the *PC4020 Installation Manual*, section 3 "How to Program."

To program using reference numbers, enter Installer's programming ([\*][8][Installer's Code]). Press and hold the [A]uxiliary key until the keypad displays the following message:

**"Enter Ref # then \*."**

Enter the reference number found in the Programming Worksheets for the section you wish to program, then press the [**\***] key. The display will immediately go to the programming item you have selected.

### 1.3 RF4164-433 Specifications

- Up to eight RF4164-433 receivers can be installed per PC4020 v3.2 or higher system.
- Nominal current draw of 35mA
- Frequency: 433 MHz
- Receives signals from up to 64 wireless zones on a PC4020 v3.2 and later
- Programmable supervisory window, programmable hours from 01:00 to 23:59
- Location
  - can be wired up to 750 ft. / 230 m from the main panel with 22 gauge wire
  - connects to Combus
  - for longer wire runs, thicker gauge wire must be used.

### 1.4 Wireless Devices

*Please refer to the Installation Instruction sheets of the following devices for more information.*

The RF4164-433 v4.0 can receive signals from the following devices:

- WLS912L-433 Glass Break Detector
- WLS914-433 Pet Immune PIR
- WS4904 Motion Detector
- WS4904P Pet Immune PIR
- WS4916 Smoke Detector
- WS4938 Panic Button
- WS4945 Mini Door/Window Contact
- DV-WS4975 Vanishing Contact
- WS4939 Wireless Key
- WS4949 2-Button Wireless Key
- WS4959 5-Button Wireless Key
- WS4969 Wireless Key with LED

# Getting Started

S E C T I O N 2

This section describes how to set up and enroll the RF4164-433 module.

## 2.1 Unpack the RF4164-433 Receiver

Check that the following parts are in your RF4164-433 package:

- RF4164-433 PCB
- RF4164-433 plastic cabinet

## 2.2 Find a Mounting Location for the RF4164-433

**NOTE:** Do not permanently mount the RF4164-433 now. Mount the RF4164-433 receiver after you have done placement tests with all the wireless devices (see sections 4.1 and 4.2).

Find a place that is:

- Dry
- Central to the proposed placement of all wireless devices
- As high as possible
- Far from sources of interference, including: electrical noise such as computers, televisions and electric motors in appliances and heating and air conditioning units; large metal objects like heating ducts and plumbing which may shield the antenna.

Make sure that electrical wires will not run over the case of the module when it is mounted.

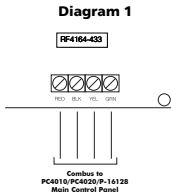
When mounting the RF4164-433 in a basement, place the module as high and as close to the underside of the first floor as possible. The range of the module will be reduced if the unit is mounted below ground level.

## 2.3 Connecting the RF4164-433

The RF4164-433 is connected to the control panel via the Combus.

**CAUTION:** Remove all power from the panel while connecting modules to the Combus.

Wire the RF4164-433 to the Combus of the PC4020 according to diagram 1:



## 2.4 Enroll the RF4164-433

You must enroll one RF4164-433 module with the PC4020 panel before you can install and program the wireless devices.

If you are installing a PC4020 v3.2 or higher, you can enroll up to eight RF4164-433 wireless receivers. This will give you a greater range in which to install wireless devices. It will also allow you to install backup wireless receivers with overlapping ranges, to provide increased security for the wireless zones on the system.

**NOTE:** The maximum number of wireless zones you can enroll on the PC4020/16128 is 64, even if you install more than one RF4164-433 wireless receiver.

**NOTE:** You cannot have more than 128 zones on the PC4020. If the total number of zones theoretically available on the zone expanders exceeds the maximum for the panel, you will not be able to use the extra zones.

A description of how to enroll keypads and modules is in your PC4020 *Installation Manual*.

Follow these steps to enroll your RF4164-433 module.

1. At a PC4020 system LCD keypad, enter [\*][8][Installer's Code] to go to the Installer's Programming section.
2. Enter Ref #[0200], to go to the **Enroll Module** section.
3. Scroll to **PC41xx Zn. Ex.**, press [\*]. The LCD keypad will display **Create Tamper on Desired Unit**.
4. Tamper the RF4164-433:
  - i) Remove the cover of the RF4164-433
  - ii) Press the case tamper switch located to the right of the terminal strip and release

**NOTE:** If equipped, the wall tamper will also need to be depressed with the case tamper. However, it does not need to be released to complete the enrollment.

5. The LCD keypad will display **RF4164-433 Zn. Ex. Mod XX Enrolled**. Record the module number of the RF4164-433 receiver in the *Programming Worksheets*.
6. When the module is enrolled, re-secure the connection between the T1 and T2 terminals.
7. To enroll another RF4164-433 module, repeat steps 2 to 6. To exit module enrollment, press [#].

The RF4164-433 module is now installed and enrolled on the PC4020 system. You can now enroll and program the wireless devices (see Section 3).



# Enroll & Program Wireless Devices

## S E C T I O N 3

This section describes how to enroll and program wireless devices. For more information, read the instruction sheet included with each device.

### 3.1 A Note about Electronic Serial Numbers (ESN)

In order to reduce the occurrence of wireless devices with the same serial number, 6-digit serial numbers are now printed on the back of each wireless device. The 6-digit serial numbers include hexadecimal digits. For instructions on programming hexadecimal numbers, see your *PC4020 Installation manual, section 3: How to Program*.

Older wireless devices will only have 5-digit serial numbers. To enroll these devices, enter [0], then the 5-digit serial number.

### 3.2 Enrolling Wireless Detectors

**NOTE:** Before you permanently mount wireless devices, test each one in its intended mounting location to make sure that it can communicate properly with the RF4164-433. Test the device at least 3 times. See Section 4.1 for more information.

1. At a system LCD keypad, enter [\*][8][Installer's Code].
2. Enter Ref #[001300] to go to the **Enroll Device** programming section.  
This section will only be available if you have already enrolled the RF4164-433 module with the panel (see Section 2.5).  
The LCD keypad will display **Enroll Device Serial # [ ]**.
3. Look at the back of the first wireless device you want to enroll. If the device has a 6-digit serial number, enter it now. If the device only has a 5-digit number, enter a [0] and then the 5-digit number.
4. *PC4020 v3.2 and higher panels:* The LCD keypad prompts **Enroll Device Zone XXX**. Enter a 3-digit zone number for the device.

**NOTE:** If the zone selected is a hardwired zone, the wireless zone will replace it. However, you cannot replace an AML or PC4820 zone with a wireless zone. If you select an AML or PC4820 zone, the keypad will sound an error tone.

5. The LCD keypad will display **Enroll Device Serial # [ ]**. Continue with steps 3 and 4 until all devices have been enrolled.
6. To exit device enrollment, press [#].

### Program Partitions and Zones

Now that you have enrolled and mounted the wireless devices, you should program your PC4020 partitions and zones. See your *PC4020 Installation Manual, section 5: Partitions and Zones*.

### 3.3 Enrolling and Programming Wireless Keys

For wireless keys to work on the system, you need to enroll them and then program the function buttons. You can enroll up to 16 wireless keys on the RF4164-433 receiver.

#### Step 1: Enrolling Wireless keys

1. At a PC4020 system LCD keypad, enter [\*][8][Installer's Code] to go to the Installer's Programming section.
2. Enter Ref #[001300], to go to the **Enroll Device** programming section. This section will only be available if you have already enrolled the RF4164-433 module with the panel (see *Section 2.6*). The LCD keypad will display

**Enroll Device Serial # [   ]**.

3. Look at the back of the wireless key. If it has a 6-digit serial number, enter it now. If it only has a 5-digit number, enter a [0] and then the 5-digit number.
4. The display will show **Enroll Device WKEY #XX**, where XX = the Wkey slot to which the wireless key is assigned (01 to 16).
5. Record the serial number and assigned slot number in the programming worksheets in the back of this manual.
6. Continue with steps 3 to 5 until all wireless keys have been enrolled.

#### Wireless Key Reporting

When you enroll a wireless key, the panel will assign a user number (0101 to 0116) to the key. The wireless key enrolled in slot 01 will be given user number 0101, slot 02 will have user number 0102, and so on. This allows the panel to transmit and log the arm/disarm events performed by each wireless key.

You can still program access codes for user numbers 0101 to 0116.

For example:

User 0101 arms or disarms using an access code - the panel transmits and logs *Closing/Opening User 0101*.

A user arms or disarms using wireless key 01 - the panel transmits *Closing/Opening User 0101* and logs *Closing/Opening User 0101 AND Closing/Opening WKey #01*.

#### Step 2: Program the Wireless Key Function Buttons

All wireless keys have four programmable function buttons. When you press and hold a button for two seconds, the programmed function will be executed. Each function button can be assigned to one partition.

**NOTE:** *Wireless key function buttons will not work when the partition(s) to which they are assigned are being accessed for zone bypassing or programming.*

1. From Installer's Programming, enter Ref #[001304], to go to **WLSKey Functions**.
2. Scroll to the slot number of the key you want to program (01-16). Press [\*].
3. Scroll to the number of the button you want to program (1-4). Press [\*].

4. Enter the 2-digit number of the function you want to select, or scroll to the function you want to assign to that button and press [\*]. The following functions may be programmed:

00 Null Key	07 Arm Interior
01 Stay Arm	08-15 [*][7] Command Outputs 1-8
02 Away Arm	16 Fire Alarm
03 No-Entry Arm	17 Auxiliary Alarm
04 Chime On/Off	18 Panic Alarm
05 System Test	19 Disarm (Off)
06 Quick Exit	

**NOTE:** *If programmed, these options do not require access code entry regardless of other system options. The programmed function will be executed immediately.*

5. The LCD keypad will show **Select (01) Partition 1**. Scroll to the partition you want the button to work in and press [\*] to select.
6. Repeat steps 3 to 5 until all the buttons are programmed.
7. Repeat steps 4 to 6 until all the wireless keys are programmed.
8. To exit, press [#].

**NOTE:** *When a wireless key is used to disarm a partition, all courtesy pulse outputs enabled for that partition will activate for two minutes.*

Now that you have enrolled and programmed all the wireless devices, you will need to test the devices and mount wireless devices using zones. See section 4 for more information.

# Testing & Mounting Devices

## SECTION 4

You should test each device you have enrolled to ensure good signal strength between the devices and the RF4164-433 receiver. Follow the instructions in this section to test wireless devices which use zones, wireless keys and handheld keypads.

If several wireless devices produce BAD test results, you may need to move the RF4164-433 to a better location (see section 2.3 for tips on finding a location for the RF4164-433 module).

### 4.1 Test the Placement of the Wireless Detectors

It is very important to test each wireless device before it is mounted. Following these steps will test the placement of WLS904/WLS904P(L)-433, WLS906-433, WLS907(T)-433, WLS912L-433, WLS914-433 (North America only), WLS925L-433 & WLS935L-433 wireless devices, based on the signal strength between the RF4164-433 module and the device:

**NOTE:** You cannot test the wireless key in this mode. See section 4.2 for instructions on testing wireless keys.

1. Temporarily place the device in its intended mounting location.
2. At a system LCD keypad, enter [\*][8][Installer's Code].
3. Enter Ref # [001303] to go to the **Device Test** section.
4. Enter [00] to have test results sounded on the keypad buzzers only. Enter [01] to have test results sounded by the system bells, as well as the keypad buzzers.
5. Use the [<][>] keys to scroll to the device number and press [\*] to select it. The keypad will display **Activate Device**.
6. Activate the device being tested. A result will be displayed on the keypad or sounded by the keypad or bell.

**WLS904-433/WLS904P(L)-433/WLS914-433** (N. A. only): Remove the detector from the backplate, wait for the result to be presented, then reattach the detector to its backplate.

**WS4916:** Hold the supplied magnet near the raised line on the outer rim of the bracket. Wait for the result to be presented. The magnet can now be removed and the next result must be waited for.

**WS4945/DV-WS4975:** Open the contact by moving the magnet away from the unit. If the unit is attached to a door or a window, open the door or window to activate the device. Wait for the result to be presented. Close the contact by moving the magnet near the unit. If the unit is attached to a door or a window, close the door or window to restore the device. Wait for the result to be presented.

**WLS912L-433:** Press and hold the test mode tab. Wait for the result to be presented. Release the test mode tab. Wait for the result to be presented.

7. Read the placement test results:

Placement	LCD Keypad Display	Keypad Buzzer/ Bells
Good	Good	1 Beep/squawk
Fair	Fair	2 Beeps/squawks
Bad	Bad	3 Beeps/squawks

Activate the device until you get 3 good or fair in a row. Wait for the result to be presented between each test on the same device. You may mount your device where results were good or fair.

For PC4020 v3.2 system, the system keypad will also display the number of RF4164-433 receivers that reported the highest level result (e.g., "Placement Good by 2 Receivers").

Devices indicating a bad result must be moved to another location. You may only have to move the device a few inches to correct a bad result.

**NOTE: Do not mount any device where a "bad" test result was indicated.**

If several wireless devices produce BAD test results, you may need to move the RF4164-433 receiver to a better location (see section 2.3 for tips on finding a location for the RF4164-433).

- To test another device, press [#] once, then repeat steps 4 to 7. Continue to test the devices until both the RF4164-433 receiver and the devices are in good or fair locations.
- To exit Installer Programming, press [#].

## 4.2 Test Wireless Key Reception

The wireless key (WLS909-433/WLS919-433) cannot be tested using the module placement test described above. To ensure that the RF4164-433 is receiving transmissions from these devices, conduct the following tests:

Use the function keys to arm and disarm the system at several different points in the installation.

**NOTE: Do not use a Fire, Auxiliary or Panic key to test your WLS9X9-433, as pressing these buttons will always notify your central station of a nonmedical emergency.**

If these devices do not operate from all points in the installation, you will need to move the RF4164-433 receiver. Moving the RF4164-433 higher will usually improve the reception.

If you move the RF4164-433 receiver, repeat the tests described in sections 4.1 and 4.2 on all the wireless devices. Continue to test the devices until you have found locations with good or fair placement results for all wireless detectors, and there is acceptable range between the RF4164-433 and the WLS9X9 devices.

## 4.3 Mount the RF4164-433 Receiver and Wireless Devices

Do not permanently mount the RF4164-433 until you have tested reception with all the wireless devices (see sections 4.1 and 4.2). Once you have done this and have a good location, mount the RF4164-433:

- Remove the four screws that attach the RF4164-433 module to the plastic cabinet.
- Pull the Combus wires through the hole at the back of the cabinet.
- Mount the cabinet securely to the wall.
- Reattach the RF4164-433 module to the mounted cabinet using the 4 mounting screws.

### Mount the Wireless Detectors

If you have conducted the placement test described in section 4.1 and got 3 "Good" or "Fair" results in a row for each device, you can mount the wireless devices. See the installation sheet for each device for mounting instructions.

# Deleting & Replacing Devices

If a device is not working, or you need to change the setup of the system, you may need to replace or delete wireless devices. Follow the appropriate procedure in this section.

## 5.1 Replacing Devices

1. At a system LCD keypad, enter [\*][8][Installer's code].
2. Enter Ref #[001302] to go to the **Replace Device** section. The LCD keypad will display  
**Serial # [ ]** and either  
**Zone XXX, Wkey# XX**
3. Use the [<][>] keys to scroll to the device to be deleted, then press [\*]. The LCD keypad will display  
**With Device**  
**Serial# [ ]**.
4. Enter the serial number of the new device. The LCD keypad will display **Device Replaced Serial # [ ] Zone XXX**

*NOTE: You cannot replace devices of different classes. (For example, a motion detector cannot be replaced by a universal transmitter.) If you need to do this, you must delete the first device (see 'Deleting Devices' below) and enroll the second. You will also need to change the programming for the new device. See Section 3: 'Enrolling and Programming WLS9XX Wireless Devices'.*

5. To exit, press [#].

## 5.2 Deleting Devices

This section describes how to delete any of the enrolled wireless devices from the RF4164-433 receiver, and from the system.

1. At a system LCD keypad, enter [\*][8][Installer's Code].
2. Enter Ref #[001301] to go to the **Delete Device** section. The LCD keypad will display  
**Serial # [ ]** and either  
**Zone Label XXX, Wkey# XX**
3. Use the [<][>] keys to scroll to the device you want to delete; then press [\*]. The bottom line of the display will read **Device Deleted**.
4. To exit, press [#].

If you enroll a device of the same class as the one deleted (See 'Replacing Devices', above) it will be placed in the old device's slot.

Make sure you update the programming for each device you enroll.

### 5.3 Deleting Device Serial Numbers

Entering this programming section will erase the serial numbers of all the wireless devices.

Zone and partition programming will not be affected. When you reenroll the wireless devices, remember to change the zone and partition programming, if necessary.

1. At an LCD keypad, enter [\*][8][Installer's Code].
2. Enter Ref #[001308], to go to **Default Wireless** and press [\*].
3. The LCD will display **Confirm Default Press \***. To confirm the default procedure, press [\*]. To cancel the default procedure, press any other key.

### 5.4 Deleting a RF4164-433 Module

To delete a RF4164-433 module, enter the following at any enrolled keypad:

1. Enter Installer's Programming by pressing [\*][8][Installer's Code].
2. Enter reference number [0201] to go to **Delete Device**, then press [\*].
3. Scroll through the different modules, type and select PC41XX. Press [\*] to select.
4. Scroll to the correct module type, then to the correct module number. For example, to delete RF4164-433 module 04, scroll to "PC41XX (04)." Press the [\*] key to delete the module.

**NOTE: If you are removing all RF4164-433 modules from the system, you will need to perform a wireless default BEFORE you delete the last module. If you do not, the hardwired zones may not work correctly. (See section 5.3 'Erasing Device Serial Numbers' above.)**

# Additional Programming Notes

## S E C T I O N 6

### 6.1 Device Fail Time

When supervision of a wireless detector is turned ON, the panel will show a trouble if a wireless zone stops working or is removed from the system. When supervision is turned OFF, the panel will not show a trouble.

**NOTE: Wireless keys are NOT supervised.**

A *zone supervisory* is a test transmission that each wireless zone sends to the RF4164-433 receiver. When the RF4164-433 module receives the supervisory transmission from the zone, the RF4164-433 module will transmit this information to the control panel.

If the control panel does not get a supervisory transmission from a zone within the Device Fail time, the zone will be considered "missing", causing a Device Fault.

The next supervisory transmission that the RF4164-433 receives from the "missing" zone will restore communication with that zone and restore the Zone Supervisory Fault. The Device Fail timer will also be reset.

#### Change the Supervision Option

1. At an LCD keypad, enter [\*][8][Installer's Code].
2. Enter Ref #[001306] to go to the **Supv Window** section.
3. Devices are listed by zone number in the order in which they were enrolled. Scroll to each device. Press [\*] to turn the supervision option ON or OFF for that device.
4. To exit, press [#].

#### Change the Device Fail Time

The default amount of time is 3 hours.

**NOTE: This must be changed to 24 hours for systems using North American devices.**

1. At an LCD keypad, enter [\*][8][Installer's Code].
2. Enter Ref #[001307] to go to the **Device Fail Time** section.
3. Enter the time as [HHMM] (valid entries 01:00 - 23:59).
4. To exit, press [#].

### 6.2 Trouble Conditions

The PC4020 always watches for possible trouble conditions. If a trouble condition occurs, the LCD keypad "Trouble" light will turn on and the keypad will beep. Press [\*][2] to display the trouble conditions.



The following trouble conditions apply to the RF4164-433 receiver. For a description of all troubles, please see *Section 16 "Diagnostics and Troubleshooting"* in the PC4020 Installation Manual.

- RF4164-433 Tamper
- RF Jam Detected (see below)
- Device Fault (see section 6.1)
- Smoke Low Sense
- Device Low Batt

### **Wireless Device Low Battery Trouble Transmission Delay**

When a device reports a low battery trouble, the keypad will indicate the trouble immediately, but the panel will delay transmission of the trouble to the monitoring station. You can program the length of the delay (in days) in Installer's Programming. If the user does not correct the low battery condition before the delay expires, the low battery trouble will be transmitted.

The low battery alarm and restoral codes will only be reported once per armed period. The low battery restore transmission is not delayed. The default transmission delay is 7 days.

To change the transmission delay:

1. At an LCD keypad, enter **[\*][8][Installer's code]**.
2. Enter Ref #**[00040211]** to go to the **4164 Low Bat Dly** section.
3. Enter the new transmission delay (from 000 to 255 days).
4. To exit, press **[#]**.

### **Replacing Batteries in Wireless Devices**

1. Remove the cover of the device from its backplate. This creates a tamper condition on the zone.
2. Refer to the battery installation instructions on the installation sheet of each component. Ensure the proper orientation of the batteries as you install them.
3. When the fresh batteries are in place, reattach the cover to the backplate. The tamper is restored and the zone sends a battery trouble restoral signal to the RF4164-433 receiver. The battery trouble is now clear.

**NOTE:** *When batteries in one device need to be replaced, the batteries in all devices should be replaced at the same time.*

### **Enable RF Jam Detect Trouble**

The RF Jam Detect trouble condition will be generated and logged when the RF4164-433 module detects an attempt to block RF signals. This tells the user that the RF4164-433 module is not receiving wireless device transmissions. The panel will transmit the General System Trouble reporting code.

**To enable warning of this trouble condition** (The default setting for this option is OFF):

1. At an LCD keypad, enter **[\*][8][Installer's Code]**.
2. Enter Ref #**[000200]** to go to the **System Toggles** section.
3. Scroll to **RF Jam Detect**.
4. Press **[\*]** to toggle the option ON or OFF.
5. To exit System Toggles, press **[#]**.

**NOTE:** *Devices must be placement tested as 'Good' or 'Fair' for RF Jam Detection to work properly.*

**NOTE:** *This option must be turned on for UL/ULC/CE installations.*

# Troubleshooting

## S E C T I O N 7

### **1. When I enter [0013] RF4164-433 options, the keypad gives me a long beep.**

You cannot enter ESNs unless the RF4164-433 wireless receiver is enrolled. See section 2 for instructions on enrolling the RF4164-433 module.

### **2. I have entered the ESN for the device but when I violate the device, the zone does not show open on the keypad.**

Check the following:

- Check that you are looking at a keypad on the same partition as the device you are testing
- Check that the ESN has been entered correctly
- Check that the zone is assigned to one or more partitions

### **3. When I try a module placement test I get no result or "Bad" results.**

Check the following (see sections 4.1 and 4.2 for more information on testing devices):

- Verify that you are testing the correct zone
- Verify that the correct ESN was entered when the device was enrolled
- Verify that the device is in range of the RF4164-433 receiver. Try testing the device in the same room as the receiver
- Confirm that the RF4164-433 receiver is properly connected to the Combustion (see section 2 for RF4164-433 receiver setup and wiring instructions)
- Check that you are testing the zone correctly (see sections 4.1 and 4.2 for testing instructions)
- Check that the batteries are working and installed correctly
- Look for large metal objects that may be preventing the signal from reaching the RF4164-433 receiver

The device must be located where consistent "Good" or "Fair" results are obtained. If several devices show "Bad" results, or if panic pendants and wireless keys operate inconsistently, move the receiver. See section 2.3 for tips on choosing a mounting location for the RF4164-433 receiver.

### **4. The LED on the motion detector does not turn on when I walk in front of the unit.**

The LED is for walk test purposes only. See your WLS904(L)-433 *Instruction Sheet* for walk test instructions.



**WLS9X9 Wireless Key Options (see section 3.3)**

**[001300]      *Enroll Device*      Default = 000000**

Wireless	Serial	Wireless	Serial
Key No.	No.	Key No.	No.
01	_____	09	_____
02	_____	10	_____
03	_____	11	_____
04	_____	12	_____
05	_____	13	_____
06	_____	14	_____
07	_____	15	_____
08	_____	16	_____

**[001304]      *Wireless key Functions*      Default = 00**

Key No.	Button Partition 1		Button Partition 2		Button Partition 3		Button Partition 4	
	No.	No.	No.	No.	No.	No.	No.	No.
01	__	__	__	__	__	__	__	__
02	__	__	__	__	__	__	__	__
03	__	__	__	__	__	__	__	__
04	__	__	__	__	__	__	__	__
05	__	__	__	__	__	__	__	__
06	__	__	__	__	__	__	__	__
07	__	__	__	__	__	__	__	__
08	__	__	__	__	__	__	__	__
09	__	__	__	__	__	__	__	__
10	__	__	__	__	__	__	__	__
11	__	__	__	__	__	__	__	__
12	__	__	__	__	__	__	__	__
13	__	__	__	__	__	__	__	__
14	__	__	__	__	__	__	__	__
15	__	__	__	__	__	__	__	__
16	__	__	__	__	__	__	__	__

\*Enter partition number 1-8

***Wireless Key Function Key Options***

00	Null Key	16	Fire Alarm
01	Stay Arm	17	Auxiliary Alarm
02	Away Arm	18	Panic Alarm
03	No-Entry Arm	19	Disarm (Off)
04	Chime On/Off	20	Quick Bypass
05	System Test	21	Music Input
06	Quick Exit	22	T-code
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