

MAXSYS™

PC4164 v2.1 • 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.*

FCC COMPLIANCE STATEMENT

CAUTION: Changes or modifications not expressly approved by Digital Security Controls Ltd. 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.

This device complies with RSS-210 of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Ce dispositif satisfait aux exigences d'Industrie Canada, prescrites dans le document CNR-210. son utilisation est autorisée seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l'utilisateur du dispositif doit être prêt à accepter tout brouillage radioélectrique reçu, même si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

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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 positioned. 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 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.

Section 1: Introduction

The PC4164 is a wireless signal receiver for use with Maxsys PC4010 and PC4020 v3.x panels. The PC4164 receives signals from WLS9XX wireless devices.

New features of the PC4164 v2.1:

- **Up to eight PC4164 v2.1 receivers can be enrolled on PC4020 v3.2 panels:** If you are installing a PC4020 v3.2 system, you can enroll up to eight PC4164 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: *If you are installing a PC4010/4020 v3.0 or 3.1 system, you can only enroll one PC4164 v2.1 module.*

- **Support for the following wireless devices:** mini-universal transmitter (WLS915), glassbreak detector (WLS912), dual-PIR motion detector (WLS914)

1.1 Before You Begin

This manual describes how to install, program and maintain the PC4164 on a PC4010/4020 Security System. You should have completed the following steps in your PC4010/4020 installation, before you install the PC4164 module:

1. Plan the installation and wiring of the PC4010/4020 system (see PC4010/PC4020 *Installation Manual*)
2. Install the control panel, and install and enroll at least one keypad to use for programming (see PC4010/PC4020 *Installation Manual*)

You can program the PC4164 from a PC4010/4020 system LCD keypad or using downloading software on a remote computer. Read your system *Installation Manual*, "How to Program" for more information.

1.2 How to Use This Manual

To install and set up the PC4164 and wireless devices, follow these steps:

1. Enroll and temporarily mount the PC4164 module (see *Section 2*)
2. Enroll and program wireless devices using zones, wireless keys and handheld keypads (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 PC4164 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.

PC4010/4020 Programming

All programming sections in this manual are referred to by reference number. A detailed description of PC4010/PC4020 programming is in the PC4010/PC4020 *Installation Manual*, "How to Program."

To program using reference numbers, enter Installer's programming ([*][8][Installer's Code]). Press and hold the [A] auxiliary 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 PC4164 Specifications

- Up to eight PC4164 receivers may be installed per PC4020 v3.2 system; one PC4164 receiver may be installed per PC4010/PC4020 v3.1 and v3.0 system
- Nominal current draw of 120mA
- Frequency: 922 to 926 MHz, Spread Spectrum
- Receives signals from up to 56 wireless zones on a PC4010 v3.0 and higher, and up to 64 wireless zones on a PC4020 v3.0 and higher
- Antenna - orthogonal design for enhanced performance
- Programmable supervisory window, 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

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

The PC4164 v2.1 can receive signals from the following devices:

This unit is listed as a single or multiple station smoke detector accessory.

- WLS904 Motion Detector
- WLS905 Universal Transmitter
- WLS906 Smoke Detector
- WLS907 Universal Transmitter
- WLS908 Panic Pendant
- WLS909 Wireless Key (up to 16)
- WLS910 Handheld Keypad (up to 4)
- WLS912 Glassbreak Detector
- WLS914 Dual-PIR Motion Detector
- WLS915 Mini-Universal Transmitter

Batteries

The wireless devices are designed to use Eveready Alkaline Energizer batteries only. The WLS908 Panic Pendant is a sealed unit and the batteries cannot be replaced.

NOTE: Do not use other brands of batteries. Using any other brand voids any approvals and may affect the system operation.

Section 2: Getting Started

This section describes how to set up and enroll the PC4164 module.

2.1 Unpack the PC4164

Check that the following parts are in your PC4164 package:

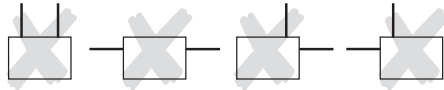
- PC4164 PCB
- PC4164 plastic cabinet
- 2 antennas

2.2 Install the Antennas

Attach both antennas to the terminals marked ANT1 and ANT2, (not GND1 and GND2). Install the antennas **ONLY** as shown in the following diagrams:



DO NOT install the antennas this way:



2.3 Find a Mounting Location for the PC4164

NOTE: Do not permanently mount the PC4164 now. Mount the PC4164 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 antenna(s) of the module when it is mounted.

When mounting the PC4164 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 smaller if the unit is mounted below ground level.

2.4 Connecting the PC4164

The PC4164 is connected to the control panel via the Combus.

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

Wire the PC4164 to the Combus of the PC4010/PC4020 according to diagram 1:

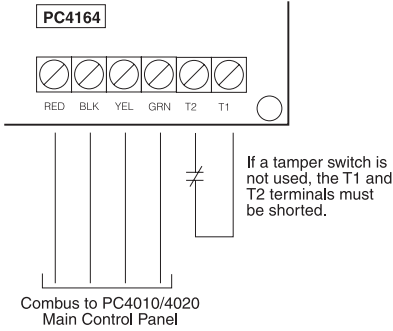


Diagram 1

2.5 Enroll the PC4164

You must enroll one PC4164 module with the PC4010/4020 panel, before you can install and program the WLS9XX devices.

If you are installing a PC4020 v3.2, you can enroll up to eight PC4164 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. If you are installing a PC4010/PC4020 v3.1 or v3.0, you can only enroll one PC4164 receiver.

NOTE: *The maximum number of wireless zones you can enroll on the a PC4010 is 56, and on a PC4020 is 64, even if you install more than one PC4164 wireless receiver.*

NOTE: *You cannot have more than 64 zones on the PC4010 and 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 PC4010/PC4020 *Installation Manual*.

Follow these steps to enroll your PC4164 module.

1. At a PC4010/4020 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 PC4164:
 - i) make sure the connection between the T1 and T2 tamper terminals is closed (tamper zone secured) (see Diagram 1).
 - ii) open the normally closed contact, if present, or remove the wiring from one of the tamper terminals (tamper zone violated). The change from secure to violated will enroll the module.
5. The LCD keypad will display **PC4164 Zn. Ex. Mod XX Enrolled**. Record the module number of the PC4164 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 PC4164 module, repeat steps 2 to 6. To exit module enrollment, press [#].

The PC4164 module is now installed and enrolled on the PC4010/4020 system. You can now enroll and program the wireless devices. How to do this is described in Section 3.

Section 3: Enroll & Program Wireless Devices

This section describes how to enroll and program:

- wireless devices using zones (WLS904, WLS905, WLS906, WLS907, WLS908, WLS912, WLS914, and WLS915)
- wireless keys (WLS909)
- handheld keypads (WLS910).

For more information on these devices, 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 PC4010/4020 *Installation Manual, 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 Enroll Wireless Devices using Zones (WLS904, WLS905, WLS906, WLS907, WLS908, WLS912, WLS914, and WLS915)

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 PC4164. Test the device 2-3 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 enrolled the PC4164 with the panel (see "Enroll the PC4164" on page 8).
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. *On PC4020 v3.2 and higher panels:* The LCD keypad prompts **Enroll Device Zone XXX**. Enter a 3-digit zone number for the device.
On PC4010/PC4020 v3.1 and v3.0 panels: The system automatically assigns the next available zone number to the device, and displays the zone number on the keypad.

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. Record the serial number and zone number in the programming worksheets in the back of this manual.
6. The LCD keypad will display **Enroll Device Serial #** []. Continue with steps 3 – 5 until all devices have been enrolled.
7. To exit device enrollment, press [#].

Program Partitions and Zones

Now that you have enrolled and mounted the wireless devices, you should program your PC4010/4020 partitions and zones. See your PC4010/4020 *Installation Manual*.

3.3 Enroll and Program Wireless Keys (WLS909)

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 PC4164.

Step 1: Enroll Wireless keys

1. At a 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 enrolled the PC4164 with the panel (see "Enroll the PC4164" on page 8). 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 WLS909 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 – 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 both *Closing/Opening User 0101 AND Closing/Opening WKey #01*.

Step 2: Program the WLS909 Function Buttons

WLS909 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) they are assigned to 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.*

3.4 Enroll and Program Handheld Keypads (WLS910)

For the handheld keypads to work on the system, you need to enroll them. You may also want to program the function keys. You can enroll up to four handheld keypads on the PC4164.

Step 1: Enroll Handheld Keypads

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 enrolled the PC4164 with the panel (see "Enroll the PC4164" on page 8). The LCD keypad will display

Enroll Device Serial # [].

3. Look at the back of the handheld keypad. 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 **Select (01) Partition 1**. Scroll to the partition the keypad will be enrolled on. Press [*] to select the partition for the keypad.

NOTE: *Handheld keypads will not work when the partition they are assigned to are being accessed for zone bypassing or programming*

5. The display will show **Enroll Device HHK #XX**, where XX = the slot the WLS910 is assigned to (1 to 4).

Record the serial number and assigned slot number in the programming worksheets in the back of this manual.

6. Repeat steps 3 – 5 until all handheld keypads have been enrolled.
7. To exit, press [#].

NOTE: *To change the partition a handheld keypad is assigned to, you must delete and then re-enroll the keypad.*

Step 2: Program WLS910 Handheld Keypad Function Keys

Number keys [1], [2], [3] and [4] can be used as function keys on the WLS910 handheld keypad. When you press and hold one of the 4 function keys on the keypad for two seconds, the programmed function will be executed.

NOTE: All keys pressed on this keypad are sent as if pressed from a wired keypad. Only use this device for performing the functions recommended in the documentation.

1. From Installer’s Programming, enter Ref #[001305], or scroll to **HHK Functions** and press [*].
2. Scroll to the slot number of the handheld keypad you want to program (01-04). Press [*].
3. Scroll to the number of the function key 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	05 System Test
01 Stay Arm	06 Quick Exit
02 Away Arm	07 Arm Interior
03 No-Entry Arm	08-15 [*][7] Command Outputs 1-8
04 Chime On/Off	

NOTE: If a programmed function requires access code entry on a hard-wired keypad, it will also require access code entry on a handheld keypad

5. Repeat steps 3 to 4 until all the function keys are programmed.
6. Repeat steps 2 to 5 until all the handheld keypads are programmed.
7. To exit, press [#].

NOTE: You cannot use the handheld keypad for Silence Fire or Reset Fire Zones functions.

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.

Section 4: Testing & Mounting Devices

You should test each device you have enrolled to ensure good signal strength between the devices and the PC4164. 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 PC4164 to a better location. (See section 2.3 for tips on finding a location for the PC4164.)

4.1 Test the Placement of WLS904, WLS905, WLS906, WLS907, WLS912, WLS914, and WLS915 Devices

It is very important to test each wireless device before it is mounted. Following these steps will test the placement of WLS904, WLS905, WLS906, WLS907, WLS912, WLS914, and WLS915 wireless devices, based on the signal strength between the PC4164 and the device:

NOTE: *You cannot test the Panic Pendant (WLS908), Wireless Key (WLS909), and Handheld Keypad (WLS910) in this mode. See section 4.2 for instructions on testing these devices.*

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 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 and WLS914: Remove the detector from its backplate, wait for 5 seconds, then reattach the detector to its backplate.

WLS906: Hold the supplied magnet near the raised line on the outer rim of the bracket. When the sounder on the WLS906 activates, remove the magnet.

WLS905, WLS907, and WLS915: Open and close the contact by moving the magnet away from the unit. If the unit is attached to a door or a window, open and close the door or window to activate the device.

WLS912: Press and hold the test mode tab for 5 seconds. Release the test mode tab. The keypad will display the test result.

7. Read the 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 results in a row. Wait 10 seconds between each test on the same device. You may mount wireless devices where results were good or fair.

On a PC4020 v3.2 system, the system keypad will also display the number of PC4164 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 PC4164 to a better location. (See section "Find a Mounting Location for the PC4164" on page 6.)

8. To test another device, press [#] once, then repeat steps 4 - 7. Continue to test the devices until both the PC4164 and the devices are in good or fair locations.
9. To exit installer programming, press [#].

4.2 Test WLS908, WLS909 and WLS910 Reception

The panic pendant (WLS908), wireless key (WLS909) and handheld keypad (WLS910) cannot be tested using the module placement test described above. To ensure that the PC4164 is receiving transmissions from these devices, conduct the following tests:

WLS908: Press the "Test" button at several different points in the installation. If the test is successful, the keypad buzzes for 3 seconds and displays "Device Test Complete".

WLS909: 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 WLS909 as pressing these buttons will always notify your central station of a non-medical emergency.

WLS910: Use the keypad to arm and disarm the system from several different points in the installation.

If these devices do not operate from all points in the installation, you will need to move the PC4164 receiver. Moving the PC4164 higher will usually improve the reception.

If you move the PC4164, 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 the PC4164 and the zone devices, and there is acceptable range between the PC4164 and the WLS908, WLS909 and WLS910 devices.

4.3 Mount the PC4164 and Wireless Devices

Do not permanently mount the PC4164 until you have tested reception with all the wireless devices (see sections 4.1 on page 14, and 4.2 on page 15).

Once you have done this and have a good location, mount the PC4164:

1. Remove the four screws that attach the PC4164 to the plastic cabinet.
2. Pull the Combus wires through the hole at the back of the cabinet.
3. Mount the cabinet securely to the wall.
4. Reattach the PC4164 to the mounted cabinet using the four mounting screws.

Mount the WLS904, WLS905, WLS906, WLS907, WLS912, WLS914, and WLS915 Devices

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.

4.4 Battery Test For WLS908 Panic Pendants

Panic Pendants cannot be tested using the module placement test, or the walk test. You must assign panic pendant zones to one or more partitions before you can test the Panic Pendants. Follow these steps to test Panic Pendants:

1. Begin testing when your PC4010/4020 system is in the ready state and the LCD keypad Ready light is on.
2. Go to a partition to which the pendant is assigned.

NOTE: *You can only view the Panic Pendant test result on a partition LCD keypad. To view the test result on a global LCD keypad, you must “loan” the keypad to the partition before you begin the test. See your PC4010/4020 Installation Manual for information on global and partition keypads.*

3. Press and hold the small middle button on the pendant marked “Test” for two seconds.
4. If the pendant’s battery is low, the LCD keypad’s Trouble light will turn ON and the keypad will give a series of continuous beeps.

The user should also perform this test when they perform the weekly system test.

NOTE: *If a low battery condition is detected, you must immediately replace the unit.*

Section 5: Deleting & Replacing Devices and Modules

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

Wireless devices are divided into the following classes:

Class	Model
2	WLS905, WLS907, WLS915
3	WLS904, WLS912, WLS914
4	WLS906
5	WLS908
6 & 9	WLS909
7	WLS910

This section describes how to replace one device with another device of the same class. All programming that was used with the old device will be used with the new device. For example, a WLS905 can be replaced with a WLS907, or a WLS910 can be replaced with another WLS910.

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 or **HHK# 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: Installing WLS9XX Wireless Devices*.
- NOTE:** To change the partition a handheld keypad is assigned to, you must delete and then re-enroll the keypad.
5. To exit, press [#].

5.2 Deleting Devices

This section describes how to delete any of the enrolled wireless devices from the PC4164, 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 or **HHK# 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 that you enroll.

5.3 Erasing 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 re-enroll the wireless devices, remember to change the zone and partition programming, if necessary.

1. At a LCD keypad, enter [*][8][Installer's code].
2. Enter Ref #[001308], or scroll 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 PC4164 Modules

To delete a PC4164 module, enter the following at any enrolled keypad:

1. Enter installer's programming by pressing [*][8][Installer's Code].
2. Enter reference number [0201] then press [*].
3. Scroll through the different modules until the module you wish to delete is displayed. Press [*] to select.
4. Scroll to the correct module type, then to the correct module number. For example, to delete PC4164 Module 04, scroll to "PC4164 (04)." Press the [*] key to delete the module.

NOTE: *If you are removing all PC4164 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 "Erasing Device Serial Numbers" above.)*

Section 6: Additional Programming Notes

6.1 Device Supervision

When supervision of a wireless device on a zone 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: For UL listed systems, supervision must be enabled.

NOTE: Wireless Keys, Panic Pendants and Handheld Keypads are NOT supervised.

A zone supervisory is a test transmission that each wireless zone sends to the PC4164. When the PC4164 receives the supervisory transmission from the zone, the PC4164 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 PC4164 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.

WLS908 Panic Pendant

The panic pendant does not transmit a supervisory signal. This is so that the user will be able to take it away from the premise. You must disable wireless supervision for each zone a panic pendant is assigned to.

Supervision is ON by default on all wireless zones. To change the supervision option for a zone:

Change the Supervision Option

1. At a LCD keypad, enter [*][8][Installer’s code].
2. Enter Ref #[001306] to go to the **Supv Window** section.
3. Devices are listed 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.

1. At a 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 PC4010/4020 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 PC4164. For a description of all troubles, please see “Diagnostics and Troubleshooting” in the PC4010/PC4020 *Installation Manual*.

- PC4164 Tamper
- RF Jam Detected (see below)
- Device Fault (see “Device Supervision” on page 19)
- 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 restore 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 a 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 back plate. This creates a tamper condition on the zone.
2. Refer to the battery installation instructions on the installation sheet of each component. Be sure to note the proper orientation of the batteries as you install them.
3. When the fresh batteries are in place, re-attach the cover to the back plate. The tamper is restored and the zone sends a battery trouble restore signal to the PC4164. 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.*

NOTE: *WLS908 Wireless Panic Pendants contain no user-serviceable parts. When the device exhibits a low battery condition, the unit must be replaced.*

Enable RF Jam Detect Trouble

The RF Jam Detect trouble condition will be generated and logged when the PC4164 module detects an attempt to block RF signals. This tells the user that the PC4164 is not receiving wireless device transmissions. The panel will transmit the General System Trouble reporting code.

The default setting for this option is OFF. To enable warning of this trouble condition:

1. At a 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 [#].

Section 7: Troubleshooting

1. When I enter [0013] PC4164 options, the keypad gives me a long beep.

You cannot enter ESNs unless a PC4164 wireless receiver is enrolled. See section 2 for instructions on enrolling the PC4164 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 on page 14 and 4.2 on page 15 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 PC4164. Try testing the device in the same room as the receiver.
- Confirm that the PC4164 is properly connected to the Combus (see section 2 for PC4164 set up and wiring instructions).
- Check that you are testing the zone correctly (see sections 4.1 on page 14 and 4.2 on page 15 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 PC4164.

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 on page 6 for tips on choosing a mounting location for the PC4164.

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 instruction sheet for walk test instructions.

5. The WLS908 shows a supervisory fault three hours after I enrolled it.

The WLS908 does not transmit a supervisory signal. Make sure supervision for the WLS908 is disabled (see section 6.1 on page 19).

WLS909 Wireless Key Options (see section 3.3 on page 10)

[001300]Enroll Device Default = 000000.

Wireless Key No.	Serial Number	Wireless Key No.	Serial Number
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 1	Partition No.*	Button 2	Partition No.*	Button 3	Partition No.*	Button 4	Partition 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 |
| 07 Arm Interior | 23 Zone Control |
| 08-15[*][7] Command Outputs 1-8 | |

WLS910 Handheld Keypad Options (see section 3.4 on page 12)

[001300]Enroll Device Default = 000000.

Handheld Keypad	Serial Number	Partition No.*	Button 1	Button 2	Button 3	Button 4
01	_____	_____	_____	_____	_____	_____
02	_____	_____	_____	_____	_____	_____
03	_____	_____	_____	_____	_____	_____
04	_____	_____	_____	_____	_____	_____

*enter partition number 1-8

Handheld Keypad Function Key Options

- | | |
|-----------------|----------------------------------|
| 00 Null Key | 07 Arm Interior |
| 01 Stay Arm | 08-15 [*][7] Command Outputs 1-8 |
| 02 Away Arm | 16 Quick Bypass |
| 03 No-Entry Arm | 17 Music Input |
| 04 Chime On/Off | 18 T-code |
| 05 System Test | 19 Cancel Key |
| 06 Quick Exit | 20 Zone Control |

Device Supervision (see section 6.1 on page 19)

[001306] Device Supervision Default = ON

NOTE: Turn OFF supervision for zones assigned to Panic Pendants (WLS908). Wireless Keys and Handheld Keypads are NOT supervised.

Zone No.	Supervision ON/OFF	Zone No.	Supervision ON/OFF	Zone No.	Supervision ON/OFF
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Device Fail Time (see section 6.1 on page 19)

[001307] Default = 0300 (valid entries 01:00 - 23:59) _____

4164 Low Battery Transmission Delay (see section 6.2 on page 20)

[00040210] Default = 007 (000-255 days) _____

RF Jam Detect System Option (see section 6.2 on page 20)

[000200] Default = OFF _____

Appendix A: Guidelines for Locating Smoke Detectors

Experience has shown that all hostile fires in family living units generate smoke to a greater or lesser extent. Experiments using typical fires in family living units indicate that detectable quantities of smoke precede detectable levels of heat in most cases. In existing homes, NFPA Standard 72 requires that a smoke detector be installed outside each sleeping area and on each additional story of the family unit.

The following information is for general guidance only and it is recommended that NFPA Standard 72 (**National Fire Protection Association, One Batterymarch Park, Quincy MA 02269**) be consulted and that the smoke detector manufacturer's literature be used for detailed installation instructions.

It is recommended that additional smoke detectors beyond those required be installed for increased protection. The added areas include: basement, bedrooms, dining rooms, furnace room, utility room and hallways not protected by the required detectors.

NOTE: *The Smoke Detector is designed to use Eveready Energizer E91 Alkaline Batteries. Do not use other brands of batteries with the Smoke Detector. Using brands other than the Eveready Energizer will void UL approval, and may affect the system's operation*

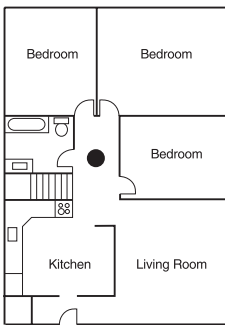


Figure 1

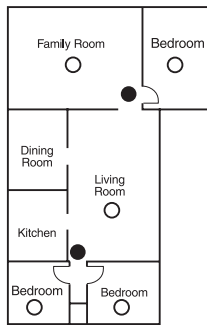


Figure 2

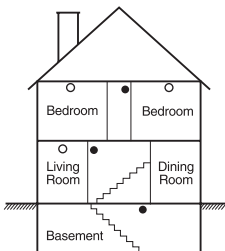


Figure 3

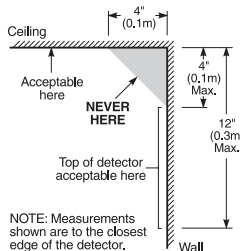


Figure 4

Figure 1: A smoke detector should be located between the sleeping area and the rest of the family unit.

Figure 2: In the family living units with more than one sleeping area, a smoke detector should be located to protect each sleeping area.

Figure 3: A smoke detector should be located on each story of the living unit.

Figure 4: Smoke Detector mounting - "Dead" Air Space. The smoke from a fire generally rises to the ceiling, spreads out across the ceiling surface and begins to bank down from the ceiling. The corner where the ceiling and wall meet is an air space into which the smoke may have difficulty penetrating. In most fires, this "dead" air space measures about 4 in. (0.1m) along the ceiling from the corner and about 4 in. (0.1m) down the wall as shown in Figure 4. Detectors should not be placed in the "dead" air space.

- Smoke detectors for better protection
- Smoke detectors for minimum protection

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- damage caused by peripherals (unless such peripherals were supplied by Digital Security Controls Ltd.);
- defects caused by failure to provide a suitable installation environment for the products;
- damage caused by use of the products for purposes other than those for which it was designed;
- damage from improper maintenance;
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Products which Digital Security Controls Ltd. determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.



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