

Contents

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.

Section 1: Introduction	4
1.1 How to use this Manual	4
1.2 Specifications and Features	5
1.3 Compatible Wireless Devices	5
1.4 Batteries	5
Section 2: PC5516Z32-900 Set up & Wiring	6
2.1 Unpack the PC5516Z32-900	6
2.2 Choose a Mounting Location for the PC5516Z32-900	6
2.3 Connect the PC5516Z32-900 to the Keypad	6
2.4 Enroll the PC5516Z32-900 Keypad	7
2.5 Connect the Keypad Zone	7
2.6 Connect the PGM Output Follower	8
3.1 A Note about Electronic Serial Numbers	9
Section 3: Enroll & Program Devices	9
3.2 Enroll Wireless Devices Using Zones (WLS904, WLS905, WLS906, WLS907, WLS908 and WLS915)	10
3.3 Enroll & Program Wireless Keys (WLS909)	11
3.4 Identified Wireless Keys	12
3.5 Enrolling & Programming Handheld Keypads (WLS910)	13
3.6 Deleting Wireless Devices	14
Section 4: Other Programming	15
4.1 Program Zones and Partitions	15
4.2 Program the Keypad PGM Output	15
4.3 Enable PC5516Z32-900 Supervision	16
4.4 Enable Supervision of Wireless Zones	16
4.5 RF Jam Detect Zone	17
4.6 Change the PC5516Z32-900 Function Key Programming	18
4.7 PC5516Z32-900 Software Default	18
Section 5: Testing & Mounting	19
5.1 Test the placement of WLS904, WLS905, WLS906, WLS907, and WLS915 devices	19
5.2 Test WLS908, WLS909 and WLS910 Reception	20
5.3 Mount the PC5516Z32-900 and Wireless Devices	20
5.4 Battery Test for WLS908 Panic Pendants	20
Section 6: Additional Notes	22
6.1 Trouble Conditions	22
Section 7: Troubleshooting	23
Section 8: Programming Worksheets	24
Appendix A: Guidelines for Locating Smoke Detectors	30
Index	31
Limited Warranty	33

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 re-evaluation 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 premises, 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.

Thank you for purchasing the PC5516Z32-900 keypad and wireless receiver. This product is the result of several years of development and will allow you to connect wireless detection devices to the PC580, PC1555, PC5008, PC5015 and the PC5010.

The PC5516Z32-900 uses 900 MHz, spread spectrum technology, which provides several advantages:

- programmable supervisory window can be as little as 1 hour, or as long as 24 hours
- devices use standard alkaline batteries as opposed to specialized batteries

Version 1.0 of this product supports these features:

- **One Hardwired Keypad Zone:** The PC5516Z32-900 has a zone input to which you can connect a device, such as a door contact.
- **One Programmable Output:** The PC5516Z32-900 has a programmable (PGM) output that you can program to operate similarly to the control panel PGM outputs.
- **RF Jamming Signal Detection:** When the PC5516Z32-900 detects an attempt to jam the RF signal, the RF Jam Detect zone will be violated and the system will generate a tamper signal. When the jamming signal is gone, the RF Jam Detect zone closes and the system sends a tamper restore signal. For more information, see section 4.5 "RF Jam Detect Zone".
- **6 digit serial numbers for all wireless devices:** These new serial numbers include hexadecimal digits. Please read Section 3.1 "A note on Electronic Serial Numbers (ESN)" for more information on enrolling older 5-digit and newer 6-digit devices.
- **Identification of Wireless Keys (WLS909):** Wireless keys 1 to 16 can be identified as access codes 17 to 32 (respectively) for identified openings/closings and command output activation. This feature is only supported on the following control panels: PC5010 v2.1, PC5015 v2.1, PC5008 v2.1, PC1555 v2.1 and PC580 v2.1 or higher. For more information regarding this feature, see Section 3.4 "Identified Wireless Keys."

We are confident you will find the PC5516Z32-900 keypad and wireless receiver a unique and useful control panel enhancement.

Introduction

S E C T I O N 1

This manual describes how to install, program and maintain the PC5516Z32-900. Before you install the PC5516Z32-900 module, you should have completed the following steps in your system installation (see your system Installation Manual):

1. Plan the installation and wiring of the security system
2. Install the control panel, and install and enroll any other keypads you will use on the system.
3. Install and enroll any hardwired zone expander modules (PC5108) you plan to use.

NOTE: PC5108 zone expander modules occupy zones in 2 groups of 4 (e.g. zones 9-12 and zones 13-16). None of the zones assigned to a PC5108 module may be used for wireless devices.

You can complete your system programming using any system keypad, or using downloading software on a remote computer (e.g. DLS-1). Read your system Installation Manual for more information. Read this manual before you begin installing the PC5516Z32-900.

1.1 How to use this Manual

To install and set up the PC5516Z32-900 and wireless devices, follow these steps:

1. Temporarily mount and wire the PC5516Z32-900 module (see Section 2)
2. Enroll the PC5516Z32-900 keypad (see Section 2)
3. Enroll and program wireless devices using zones (see Section 3)
4. Enroll and program wireless keys and handheld keypads (see Section 3)
5. Complete zone and other programming on the system (see Section 4)
6. Test the placement of all the wireless devices (see Section 5)
7. Permanently mount the PC5516Z32-900 receiver and wireless devices (see Section 5)

For information on troubles related to the PC5516Z32-900, see Section 6. For help with troubleshooting, see Section 7.

1.2 Specifications and Features

- Current Draw: 200 mA
- Frequency: 922 to 926 MHz, Spread Spectrum
- Zones - receiver can receive signals from up to 32 wireless zones. The PC5516Z32-900 also has one hardwired keypad zone available.
- Antenna - orthogonal design for enhanced performance
- Supervisory - programmable supervisory window: 1 to 24 hours
- Location
 - can be wired up to 750 ft. / 230 m from the main panel with 22 gauge wire
 - connects to Keypad
 - for longer wire runs, thicker gauge wire must be used.
- Compatibility: The PC5516Z32-900 can be connected to the following panels: PC5010, PC5015, PC5008, PC1555, PC580

1.3 Compatible Wireless Devices

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

The PC5516Z32-900 v1.0 can receive signals from the following devices:
This unit is listed as a single or multiple station smoke detector accessory.

- WLS904 Motion Detector
- WLS906 Smoke Detector
- WLS905, WLS907, and WLS915 Universal Transmitters (Door/window contacts)
- WLS908 Panic Pendant
- WLS909 Wireless Key
- WLS910 Handheld Keypad

1.4 Batteries

The wireless devices are designed to use Eveready Alkaline Energizer batteries only.

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

PC5516Z32-900 Set up & Wiring

S E C T I O N 2

This section describes how to set up and wire the PC5516Z32-900 module.

2.1 Unpack the PC5516Z32-900

Check that the following parts are in your PC5516Z32-900 package:

- PC5516Z32-900
- four mounting screws
- one 5600Ω resistor

2.2 Choose a Mounting Location for the PC5516Z32-900

NOTE: Do not permanently mount the PC5516Z32-900 now. Mount the PC5516Z32-900 receiver after you have done placement tests with the wireless devices (see sections 5.1 and 5.2).

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 module when it is mounted. If mounting the PC5516Z32-900 in a basement, place the keypad as high and as close to the underside of the first floor as possible. The range of the wireless receiver will be reduced if the unit is mounted below ground level.

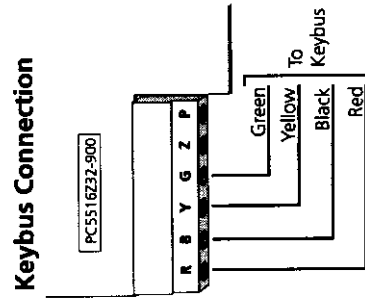
2.3 Connect the PC5516Z32-900 to the Keypad

CAUTION: Remove all power from the system while connecting modules to the Keypad.

Remove the screw in the bottom of the keypad to access the wiring terminals.

Connect the PC5516Z32-900 to the four-wire Keypad of the control panel according to the following diagram.

After you have completed the wiring, reconnect the power to the security system.



Keypad Connection

S E T U P & W I R I N G

2.4 Enroll the PC5516Z32-900 Keypad

To enroll the PC5516Z32-900 keypad, choose a partition assignment (if you are installing a PC5010 or PC5015 panel), and choose a slot assignment. There are eight available slots for keypads. The PC5516Z32-900, by default are always enrolled in slot 1. Enroll each keypad in a different slot (1 to 8).

Keypad enrollment is required since the panel must know which slots are occupied in order to generate a fault when a supervisory signal is not present.

NOTE: Each keypad with an assigned zone must be enrolled in its own slot.

NOTE: Each keypad must be enrolled one at a time. After enrolling all keypads, a supervisory reset should be performed.

To enroll a keypad in a slot, enter the following:

1. Enter [*][8][Installer's Code]
2. Enter [000] for Keypad Programming
3. Enter [0] for Partition and Slot Assignment
4. Enter a two digit number to specify the partition and slot assignment:
If you are installing a PC580, PC1555 or a PC5008, enter [1] for the first digit.
If you are installing a PC5010 or PC5015, enter the first digit as follows:
1st digit Enter [0] for Global Keypad
 Enter [1] for Partition 1 Keypad
 Enter [2] for Partition 2 Keypad

5. Press the [#] key twice to exit programming.
2nd digit Enter [1] to [8] for slot assignment

2.5 Connect the Keypad Zone

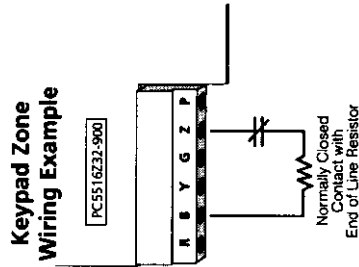
Each "z" keypad on the system has a zone input to which a device - such as a door contact - can be connected. This eliminates the need to run wires back to the control panel for every device.

To connect the zone, run one wire to the Z terminal and the other to B (Black), as in the example on the right.

For powered devices, use red and black to supply power to the device. Run the red wire to the R (positive) terminal and the black wire to the B (negative) terminal.

When using end of line supervision, connect the zone according to one of the configurations outlined in your control panel's Installation Manual. End of line resistors must be placed on the device end of the loop, not at the keypad.

NOTE: Keypad zones do not support DEOL resistors.



Keypad Zone Wiring Example

Assigning Keypad Zones

When using keypad zone inputs, each input used must be assigned a zone number in Installer's Programming.

1. Ensure that you have enrolled the keypad into the desired slot. (See section 2.4 above.)
2. Enter programming section [020] to assign the zones.
3. There are eight programming locations in this section, one for each keypad slot. Enter a 2-digit zone number for each of the keypad zones. Enter the number in the slot corresponding to the keypad to which each zone is connected.

Example: You want to assign the zone on the PC5516Z32-900 keypad in slot 7 to zone 3. In section [020], scroll to option [7] and enter (03).

4. To exit, press [#].

NOTE: Keypad zones 1-6 will replace zone terminals Z1-Z6 on the control panel.

NOTE: Once the keypad zones are assigned, you must also program zone definitions and zone attributes. (See section 4 "Other Programming".)

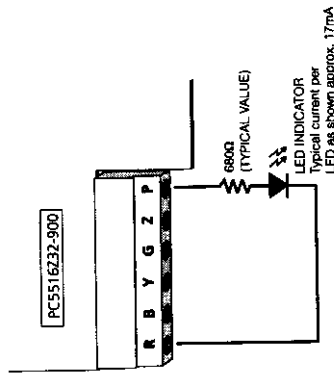
NOTE: Keypad zones can only be used for household burglary-initiated devices. Do not place the device more than 3 feet from the keypad. The keypad zone must be tested weekly.

2.6 Connect the PGM Output Follower

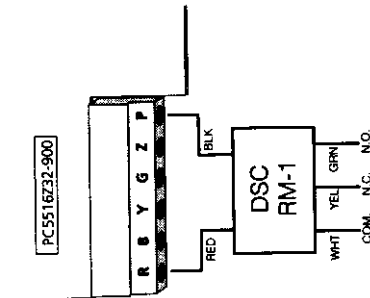
The keypad PGM output will follow any of the control panel PGM outputs (programmed in sections [009], [010], and [011]). To program which control panel PGM output the keypad PGM output will follow, see section 4.x.

To connect the keypad PGM output to a device, follow one of the wiring diagrams below.

LED Indicator



Relay Output



This section describes how to enroll and program:

- wireless devices using zones (WLS904, WLS905, WLS906, WLS907, WLS908, 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

An electronic serial number (ESN) is printed on the back of each wireless device. ESNs are used to enroll the wireless devices with the PC5516Z32-900 receiver.

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.

NOTE: 6-digit serial numbers are only supported on the following control panels: PC5010 v2.x and higher, PC5015 v2.2, PC5008, PC1555 and PC580.

The 6-digit serial numbers include hexadecimal digits. For instructions on programming hexadecimal numbers, see your system Installation Manual, section 4: How to Program.

When connecting the PC5516Z32-900 to a PC5010 or PC5015 v1.x panel, enter 5-digit serial numbers only.

When connecting the PC5516Z32-900 to a PC5010 v2.x, PC5015 v2.x, PC5008, PC1555 or PC580 panel follow the instructions below.

New Wireless Device ESNs

All new devices have both a 5-digit and a 6-digit serial number printed on them. When enrolling new devices with the PC5516Z32-900, enter the 6-digit ESN

Old Wireless Device ESNs

You can use older devices on the PC5516Z32-900 receiver, even though they only have a 5-digit ESN.

When using older wireless devices, enter [0] + 5-digit ESN

Now that you have connected and set up the PC5516Z32-900, you should enroll and program the wireless devices. See section 3 for instructions.

3.2 Enroll Wireless Devices Using Zones (WLS904, WLS905, WLS906, WLS907, WLS908 and WLS915)

Enroll wireless devices which use zones (universal transmitters, motion detectors, smoke detectors, and panic pendants):

1. At a system keypad, enter [*][8][Installer's code] to go the installer's programming section.
2. Enter programming section [804].
3. Enter the 2-digit number corresponding to the zone the device is to occupy ([01] to [32]).

NOTE: *Hardwired and wireless devices cannot be assigned to the same zone. PC5108 zone expander modules occupy zones in 2 groups of 4 (e.g. zones 9-12 and zones 13-16). None of the zones assigned to a PC5108 module may be used for wireless devices. For more information on zone assignment, consult your system Installation Manual.*

4. Enter the device's ESN. (See section 3.1 for instructions.)
5. The device is now enrolled on the system. Record the serial number and the assigned zone number in the programming worksheets in the back of this manual.
6. Continue with steps 3 - 5 until you have enrolled all wireless devices.
7. To exit press [#].

NOTE: *The devices will not work properly until you complete zone and partition programming (see section 4).*

3.3 Enroll & Program Wireless Keys (WLS909)

For wireless keys to work on the system, you need to enroll them and then program the function buttons. Wireless keys are not assigned to zones and require no zone programming. You can enroll up to 16 wireless keys on the system.

Enroll Wireless keys

1. At a system keypad, enter [*][8][Installer's code] to go to the Installer's Programming section.
2. Enter programming section [804].
3. Enter a 2-digit number [41]-[56] to assign the wireless key a slot. These numbers correspond to wireless key numbers 01-16.
4. Enter the key's ESN. (See section 3.1 for instructions.)
5. The key is now enrolled on the system. Record the serial number and the assigned slot number in the programming worksheets in the back of this manual.
6. Repeat steps 3 - 5 until all wireless keys have been enrolled.
7. (PC5010 and PC5015 only) By default, all wireless keys are assigned to Partition 1. To assign keys to Partition 2, enable the appropriate options in programming sections [91] and [92].

NOTE: *A wireless key can only be assigned to one partition.*

8. To exit press [#].

Program the WLS909 Function Buttons

WLS909 wireless keys have four programmable function buttons. You must program a set of four functions for the buttons before any keys will work. After the functions are programmed, when you press and hold one of the four buttons for two seconds, the system will execute the programmed function.

For systems not using partitions: program the function buttons in section [59]. All wireless keys will have the same four functions.

For systems using 2 partitions (PC5010 and PC5015 only): all wireless keys assigned to Partition 1 will have the four functions programmed in section [59]. All wireless keys assigned to Partition 2 will have the four functions programmed in section [60]. For example, if function button 1 in Section [59] is programmed for Stay arming, then pressing the first button on wireless keys assigned to Partition 1 will Stay arm Partition 1.

NOTE: *Wireless keys will not work when the partition they are assigned to is being accessed for zone bypassing or programming.*

1. At a system keypad, enter [*][8][Installer's code].
2. Enter programming section [804].
3. Enter programming section [59] for keys assigned to partition 1, or [60] for keys assigned to partition 2.

4. For each of the 4 function buttons, enter the 2-digit number of the function you want to select. See the programming worksheets for a list of function key options.
5. Record your programming choices in the worksheets in the back of the manual.
6. To exit press [#].

3.4 Identified Wireless Keys

Reporting by the system of openings/closings by individual wireless keys and command output [#][7] activation by wireless key buttons may be supported on certain control panels. To do this, the system will reserve access codes 17 - 32 for wireless keys 01-16 respectively. You must program one access code for each wireless key (using [#][5] access code programming) for this feature to work correctly.

NOTE: Program these access codes on the system after you have connected the PC5516Z32-900 to the Keypad (see section 2.3).

Refer to your system Installation Manual for information on access code programming.

Opening/Closing By Wireless Key Reporting

NOTES: The Identified Wireless Key Closing option is only available with the PC5010 v2.0, PC5008 v2.0 and higher by turning section [015] option 4 off.

The Identified Wireless Key Opening option is only available with the PC1555 v2.1, PC580 v2.1, PC5008 v2.1 and higher, PC5015 v2.2 and higher by turning section [017] option 1 off.

To enable the reporting of closings by identified wireless keys:

- Make sure the control panel is v2.0 or higher
- Program a valid access code for each key
- Program a closing reporting code for each key's access code
- Disable the **Quick Arm** option in section [015] option [4]

To enable the reporting of openings by identified wireless keys:

- Make sure the control panel is v2.1 or higher
- Program a valid access code for each key
- Program an opening reporting code for each key's access code
- Enable the **WLS Key Uses Access Codes** by turning section [017] option [1] off.

Command Output Activation

NOTE: The Identified Wireless Key Command Output Activation feature is only available with the PC5010, PC5015, PC5008, PC1555 and PC580 v2.0 and higher.

To enable command output activation by wireless keys:

- Make sure the control panel is v2.0 or higher
- Program a valid access code for each key
- Enable the PGM output attribute **Requires Access Code** for each PGM output programmed as [#][7][1-4] in sections [141] to [154].

3.5 Enrolling & Programming Handheld Keypads (WLS910)

For handheld keypads to work on the system, you need to enroll them and then program the function buttons. You can enroll up to 4 handheld keypads on the system.

Enroll Handheld Keypads

1. At a system keypad, enter [#][8][Installer's code] to go to the Installer's Programming section.
2. Enter programming section [804].
3. Enter a 2-digit number (33-36) to assign the handheld keypad a slot. These numbers correspond to handheld keypad numbers 1-4.
4. Enter the keypad's ESN. (See section 3.1 for instructions.)
5. The keypad is now enrolled on the system. Record the serial number and the 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. **(PC5010 and PC5015 only)** By default, all handheld keypads are assigned to Partition 1. To assign a keypad to Partition 2, enable the appropriate options in programming section [90].

NOTE: A handheld keypad can only be assigned to one partition.

8. To exit press [#].

Program the WLS910 Function Buttons

WLS910 handheld keypads have four programmable function buttons. You must program a set of four functions for the function buttons to work.

For systems not using partitions: program the function buttons in section [57]. All handheld keypad buttons will have the same four functions.

For systems using 2 partitions (PC5010 and PC5015 only): all handheld keypads assigned to Partition 1 will have the four functions programmed in section [57]. All handheld keypads assigned to Partition 2 will have the four functions programmed in section [58]. For example, if function button 1 in Section [57] is programmed for Stay arming, then pressing the first button on handheld keypads assigned to Partition 1 will Stay arm Partition 1.

1. At a system keypad, enter [#][8][Installer's code] to go to the Installer's Programming section.
2. Enter programming section [804].
3. Enter programming section [57] for partition 1 function buttons, or [58] for partition 2 function buttons.
4. For each of the 4 function buttons, enter the 2-digit number of the function you want to select. See the programming worksheets for a list of function button options.
5. Record your programming choices in the worksheets in the back of the manual.
6. To exit press [#].

3.6 Deleting Wireless Devices

To remove a wireless device from the system, follow the guideline for adding a wireless device. Program the ESN as [000000]. The wireless device for the zone will be removed.

NOTE: You may need to remove power from the panel in order to clear troubles caused by deleted zones.

Now that you have enrolled all the wireless devices, you will need to program the system to work properly with the devices. See section 4 for more information.

Other Programming

4.1 Program Zones and Partitions

Now that you have enrolled the wireless devices, you should complete all zone programming on the system. Although the exact programming required varies depending on which control panel the PC5516Z32-900 is connected to, you should check that the following programming areas are completed correctly for each wireless zone:

- Enable zones and/or assign zones to one or more partitions (programming sections [201]-[209]).
- Program the definition for each zone (programming sections [001]-[004]).

NOTE: *WLS906 wireless smoke detectors must be assigned to zones defined as Delay 24-hr fire (wireless) [87] or Standard 24-hr fire (wireless) [88] for proper supervision.*

- Enable the wireless zone attribute for each wireless zone (PC585, PC1565, PC5008, PC5010 v2.0 and up, PC5015 v2.2 and up only) (programming sections [101]-[132]).

See your system Installation Manual, for more information on each of the above programming sections.

4.2 Program the Keypad PGM Output

You can program the keypad PGM output to follow any of the control panel PGM outputs (programmed in control panel programming sections [009], [010], and [011]). You can program each control panel PGM output for various PGM options (e.g. if you program an output for (01) Burglary and Fire Bell, the output will turn on whenever the system's alarm sounds.) If you program control panel PGM1 for (01) Burglary and Fire Bell, and you also program the keypad PGM for PGM1, both outputs will turn on whenever the system's alarm sounds.

For more information on PGM output options, please see your control panel's Installation Manual.

To program which control panel PGM output the keypad PGM output will follow:

1. Enter [*][8][Installer Code]
2. Enter [000]. This is the keypad programming section.
3. Enter [6]. This is the keypad PGM output programming section.
4. Enter the number of the PGM output that the keypad output will follow. Valid entries are 01 to 14. The default setting is 00.
5. To exit, press [#].

4.3 Enable PC5516Z32-900 Supervision

The control panel will automatically supervise the PC5516Z32-900 receiver via the Keypas one-minute after at least one device has been enrolled on the module. The system will generate a General System Supervisory trouble if the module is removed from the Keypas. If you need to remove the PC5516Z32-900 module from an existing system, you will have to disable supervision of the PC5516Z32-900.

To disable PC5516Z32-900 supervision:

1. Disconnect the PC5516Z32-900 from the Keypas
2. Enter [*][8][Installer Code]
3. Enter [902]. The control panel will clear all supervision and re-scan the system for connected modules. The scan will take approximately one minute.
4. To exit press [#].

To review which modules the control panel is currently supervising:

1. Enter [*][8][Installer's Code]
 2. Enter [903] to display all modules. On LED keypads, light [17] will indicate that the PC5516Z32-900 is present on the system. On keypads, scroll until the module name appears on the display.
 3. To exit press [#].
- If the PC5516Z32-900 module does not show on the keypad, one of the following conditions may be present:
- the module is not connected properly to the Keypas
 - there is a problem with the Keypas wiring run
 - the module does not have enough power
 - no devices have been enrolled on the PC5516Z32-900

4.4 Enable Supervision of Wireless Zones

NOTE (for PC5010 v1.x control panels only): For UL Listed installation, Double EOL resistors must be enabled in the PC5010 for the wireless zones to be supervised. If normally Closed or Single EOL resistors are selected the PC5010 will not be able to supervise the wireless devices. If a wireless device stops sending a supervisory signal (the unit stops functioning) the panel will not indicate a supervisory trouble condition unless Double EOL resistors are used. In addition, all hardwire zones must be wired for Double EOL resistors. For more information, refer to your PC5010 v1.x Installation Manual.

NOTE (PC5010 v2.0 and higher, PC5015 v2.2 and higher, PC5008, PC1555, PC580 only): For wireless supervision to work, you must enable the wireless zone attribute on all wireless zones (sections [101] to [132], option [8] ON).

NOTE: The RF Jam Detect zone must have the supervision option disabled.

NOTE: The supervisory option for any panic pendants enrolled on the system must be OFF. For UL Listed systems, the wireless zones must be programmed as supervised.

Wireless Supervisory Window

Each wireless zone (WLS904, WLS905, WLS906, WLS907 or WLS915) will send a supervisory signal every 12 minutes. If the receiver does not receive a signal within the time programmed for the **Wireless Supervisory Window**, it will generate a supervisory fault.

To program the wireless supervisory window:

1. Enter [*][8][Installer Code] to enter Installer Programming.
2. Enter [804] to enter the Wireless Module Programming.
3. Enter sections [81].
4. Enter the time period for the supervisory window (valid entries are 01-24 hours).
5. To exit press [#].

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.

Disable/Enable Zone Supervision

All wireless zones have supervision enabled by default. To disable supervision for any zone, enter the following at any system keypad:

1. Enter [*][8][Installer Code] to enter Installer Programming.
2. Enter [804] to enter the Wireless Module Programming.
3. Enter sections [82], [83], [84] and [85]. Disable or enable supervision for each wireless zone by turning each relevant option on or off.
4. To exit press [#].

4.5 RF Jam Detect Zone

For RF jamming detection to work, you must select an unused zone to be used as the RF Jam Detect zone. When the PC5132 detects an attempt to jam the RF signal, the RF Jam Detect zone will be violated and the system will generate a tamper signal. When the jamming signal is gone, the RF Jam Detect zone closes and the system sends a tamper restore signal.

To enable RF jamming detection:

1. Enter [*][8] [Installer's Code].
2. Enter programming section [804].
3. Select an unused zone to be the RF Jam Detect zone. Enter the 2-digit number ([01] to [32]) of the RF Jam Detect zone on the keypad, then program the serial number as [200000].
3. Enter section [93]. Enter the 2-digit number of the RF Jam Detect zone ([01] to [32]) in the programming section.
4. Disable supervision for the RF Jam detect zone by turning the relevant option off in section [82], [83], [84] or [85]. (See section 4.3 for more information.)
5. RF jamming detection is now enabled. To exit installer programming, press [#].

4.6 Change the PC5516Z32-900 Function Key Programming

There are five function keys on the PC5516Z32-900 keypad labelled Stay, Away, Chime, Reset and Exit. Each of these keys is programmed by default to perform one the named function. Press and hold the appropriate key for two seconds to activate a function.

If the Quick Arm option is disabled (section [015], option [4]), users will need to enter an access code after pressing a function key.

You can change the programming of these keys so that they will perform different functions. For complete descriptions of all available functions, please see your control panel's Installation Manual. To change function key programming:

1. Enter [*][8] [Installer's Code].
2. Enter programming section [000].
3. Enter [1], [2], [3], [4], or [5], depending on which key you want to change.
4. Enter the 2-digit number of the function you want the key to have. Please refer to your control panel's Installation Manual for a list of available functions.
5. Continue from step 3 until all the keys are programmed.
5. To exit, press [#] twice.

4.7 PC5516Z32-900 Software Default

Returning the PC5516Z32-900 programming to factory default settings is a quick way to remove all the enrolled devices from the system and reset all the programming in section [804].

NOTE: *Performing this procedure will not change any programming sections except [804]. Resetting the control panel to factory default settings will not return the PC5516Z32-900 module to factory default settings.*

To restore the PC5516Z32-900 programming to the factory default settings, perform the following:

1. Enter [*][8] [Installer's Code].
2. Enter programming section [996].
3. Enter the Installer's Code, followed by [996] again. Press [#]. The software for the PC5516Z32-900 will be restored to its factory default settings.
4. Press [#] to exit Installer Programming. After a software default, you must exit and then re-enter Installer Programming before attempting to program the PC5516Z32-900.

For instructions on restoring the default programming of the control panel or any other connected module, see your system Installation Manual.

Now that you have completed all PC5516Z32-900 related programming, you can test and mount the receiver and devices. See section 5 for more information.

Testing & Mounting

5.1 Test the placement of WLS904, WLS905, WLS906, WLS907, and WLS915 devices

It is very important to test the proposed placement of each wireless device before it is mounted. Following these steps will test the placement of the wireless motion detectors (WLS904), wireless smoke detectors (WLS906) and wireless door/window contacts (WLS905, WLS907, WLS915), based on the signal strength between the PC5516Z32-900 and the device.

NOTE: *You cannot test the Panic Pendant (WLS908), Wireless Key (WLS909), and Handheld Keypad (WLS910) in this mode. See section 5.2 for instructions on testing these devices. You cannot run a placement test on the RF Jam Detect zone.*

1. Temporarily place the device you want to test in the place you want to mount it.
2. At a system keypad, enter [*][8][Installer Code].
3. Enter programming section [904].
4. Enter the 2-digit zone number for the device to be tested.
5. Activate the device being tested until a result is displayed on the keypad or sounded by the keypad or bell.

WLS904: Remove the detector from its backplate, wait for 5 seconds, then reattach the detector to its backplate.

WLS906: Remove the detector from its backplate, wait for 5 seconds, then reattach the detector to its backplate. Or hold a magnet near the raised line on the outer rim. Then remove the magnet.

WLS905, WLS907 & 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.

6. Read the test results at the keypad:

Result	LED Keypad	LCD Keypad	Buzzer/Bell
Good	Light 1 On Steady	"Good"	1 Beep/Squawk
Fair	Light 2 On Steady	"Fair"	2 Beeps/Squawks
Bad	Light 3 On Steady	"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.

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 PC5516Z32-900 to a better location. (See section 2.2 for tips on finding a location for the PC5516Z32-900.)

7. To test another device, press [#] once, then repeat steps 4 - 6. Continue to test the devices until both the PC5516Z32-900 and the devices are in good locations.
8. To exit installer programming, press [#] twice.

5.2 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 PC5516Z32-900 is receiving transmissions from these devices, conduct the following tests:

- WLS908:** Activate the Panic alarm at several different points in the installation.
- WLS909:** Use the function keys to arm and disarm the system at several different points in the installation.
- 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 PC5516Z32-900 receiver. Moving the PC5516Z32-900 higher will usually improve the reception.

If you move the PC5516Z32-900, repeat the tests described in sections 5.1 and 5.2 on all the wireless devices. Continue to test the devices until you have found satisfactory locations for the PC5516Z32-900 and the WLS904, WLS905, WLS906 and WLS907 devices, and there is good reception between the PC5516Z32-900 and the WLS908, WLS909 and WLS910 devices.

5.3 Mount the PC5516Z32-900 and Wireless Devices

Do not permanently mount the PC5516Z32-900 until you have tested reception with all the wireless devices (see sections 5.1 and 5.2).

Once you have a good location, mount the PC5516Z32-900:

1. Remove the four screws that attach the PC5516Z32-900 to the plastic cabinet.
2. Pull the Keybus wires through the hole at the back of the cabinet.
3. Mount the cabinet securely to the wall.
4. Reattach the PC5516Z32-900 to the mounted cabinet using the four mounting screws.

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

If you have conducted the placement test described in section 5.1 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.

5.4 Battery Test for WLS908 Panic Pendants

You cannot test Panic Pendant batteries using the methods described in sections 5.1 and 5.2. You must program panic pendant zones before you can test the panic pendants.

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

Follow these steps to test panic pendants:

1. Begin testing when your system is in the ready state and the keypad Ready light is on.
2. Go to an LCD keypad.

NOTE: *If your system is partitioned, 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 Installation Manual for information on global and partition keypads.*

3. Press and hold the "Test" button on the pendant for two seconds.
 4. If the pendant's battery condition is *normal*, the Ready light on the LCD keypad will turn OFF for 30 seconds or until the [#] key is pressed. On the PC5010, PC5015, PC5008, PC1555 and PC580 v2.x or higher: If the pendant's battery condition is *normal*, the keypad will beep and the LCD keypad will display "System Test in Progress."
- 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.

Instruct the user(s) to perform this test when they perform the weekly system test.

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

Replacing a Pendant with a Low Battery

You should immediately replace a pendant when a low battery is indicated. To replace a pendant on the system, follow these steps:

From the keypad:

1. Enter [#][8][Installer Code].
2. Enter programming Section [804].
3. Enter the 2-digit zone number of the pendant to be replaced (01-32).
4. Enter serial number [000000].
5. Re-enter the 2-digit zone number for the pendant being replaced.
6. Enter the ESN of the new pendant.
7. To exit press [#] twice.

Through downloading:

1. Connect to the control panel through downloading.
2. Upload window contents of the zone serial numbers in the wireless expansion section of downloading.
3. Change the serial number of the pendant to be replaced to [000000].
4. Download window contents.
5. Enter the ESN of the new pendant.
6. Download window contents.

6.1 Trouble Conditions

The control panel always watches for possible trouble conditions. If a trouble condition occurs, the 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 PC5516Z32-900 and/or any enrolled devices. For a description of all troubles, please see your system Installation Manual.

- General System Tamper
- General System Supervisory
- Zone Fault
- Device Low Battery
- Zone Tamper

Wireless Zone Low Battery Transmission

Within the supervisory transmission, the device will indicate the status of the battery. If a battery is low, the system will indicate a Device Low Battery trouble.

NOTE: *Since the WLS908 does not send supervisory transmissions, a low battery on this device will not cause a Device Low Battery trouble. The user should be instructed to test this device every week. See section 5.4 for testing instructions.*

The system will delay reporting the event to the central station for the number of days programmed for **Zone Low Battery Transmission Delay** in section [370]. This will prevent unnecessary reporting of the event if the user has been instructed on how to replace batteries.

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 restoral signal to the PC5516Z32-900. The battery trouble is now clear and the device should function normally.

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

1. When I enter the 2-digit zone number when adding a wireless device, the keypad gives me a long beep.

You cannot enter ESNs unless a PC5516Z32-900 keypad is connected to the Keybus. See section 2 for instructions on setting up and wiring the PC5516Z32-900 keypad.

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:

- Ensure the ESN has been entered correctly
- Ensure that the zone is enabled for the partition (if partition programming is used).
- Ensure that the wireless zone is not assigned to a zone used by PC5108 modules.
- Ensure that the zone is programmed for something other than "Null Operation." Wireless smoke detectors must be assigned to zones defined as type [87] or [88].

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

Check the following (see sections 5.1 and 5.2 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 PC5516Z32-900. Try testing the device in the same room as the receiver.
- Confirm that the PC5516Z32-900 is properly connected to the Keybus (see section 2 for PC5516Z32-900 set up and wiring instructions).
- Check that you are testing the zone correctly (see sections 5.1 and 5.2 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 PC5516Z32-900.

The device must be located where consistent "Good" results are obtained. If several devices show "Bad" results, or if panic pendants and wireless keys operate inconsistently, move the receiver. See section 2.2 for tips on choosing a mounting location for the PC5516Z32-900.

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. You must disable supervision for the zone the WLS908 is assigned to (see section 4.4).