

Penta

CONTROL PANEL

INSTALLATION MANUAL



Electronics Line

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Introduction

This manual is designed to help you with the installation process for the Penta control panel. We strongly urge you to read through this manual, in its entirety, before beginning the installation process so that you can best understand all that this security system has to offer your customers. This manual is not intended for end user use. End users are encouraged to read the user manual provided with the system. If you have any questions concerning any of the procedures described in this manual please contact Electronics Line at (+972-3) 9211110 (International) or 1-800-683-6835 (USA).

Catalog Number: ZI0094E (6/00)

1.1: Specifications

Power Input	Secondary:	15Vac, 22-30VA transformer
	Battery backup:	12Vdc/3.2Ah
Power Output	Auxiliary power:	13.5 - 14.0V (AC operated) 12.0V Nominal (Battery operated)
	Bell/siren output:	13.5 - 14.0V (AC operated) 12.0V Nominal (Battery operated)
Zones	4 security zones supervised by 2.2K ¼W end of line resistors 1 tamper/ ON/OFF keyswitch zone	
Keypads	Up to 3 individually addressed. 3 user initiated distress keys Current draw: 100mA max. for each keypad, 200mA max. if three keypads are installed	
User Codes	6 (1 master code, 3 standard user codes, 1 duress code and 1 installer code Number of digits per user code: 4	
Operating Temperature	0° to 50°C	

1.2: Zones

The Penta control panel includes four security zones plus one tamper zone which can be defined for use with an ON/OFF keyswitch. The four security zones are fully programmable and supervised by end of line resistors. The Penta offers five zone response types for customized programming to suit a wide range of installations. Each zone can be programmed to activate a siren/bell when tripped or to generate a silent alarm where only a message is sent to the central station. The following is a summary of the operational characteristics for each zone response type:

Perimeter Zone

Perimeter zones instantly generate an alarm when opened.

Suggested Use: Magnetic contacts or detectors protecting the doors and windows which are never used to enter the premises.

Perimeter Zone With Delay

This zone type starts the entry delay when opened, allowing the user time to disarm the system.

Suggested Use: Magnetic contacts or detectors protecting the doors commonly used to enter or leave the premises.

Conditional Zone

If a perimeter zone with delay is opened first, conditional zones do not generate an alarm when opened during the entry delay. If a conditional zone is opened first, an alarm is generated instantly.

Suggested Use: Detectors protecting the area in which a keypad has been installed or the area crossed in order to reach the keypad.

Interior Zone

Interior zones are automatically bypassed when the system is armed using the 'Stay' command *, 9.

Suggested Use: Detectors protecting the interior areas in which the user requires unrestricted movement when 'Stay' arming. For example bedrooms, bathrooms and interior offices.

24hr Zone

24hr zones always generate an alarm when opened whether the system is armed or disarmed.

Suggested Use: Panic buttons, glassbreak detectors and areas which require 24 hour protection.

Fast Loop Perimeter Zone

This zone is a perimeter zone with a 50ms loop response time (compared to 150ms for all other zone types).

Suggested Use: Shock sensors used to detect attempts to breach the exterior of a protected area.

1.3: Telephone Communication

The Penta allows for up to two telephone numbers (primary and backup) to be programmed into the system dedicated to central station communications or for use with the 'Follow-me' format. An additional number can be programmed for use in conjunction with the RP callback feature. Up to 16 digits can be programmed for each telephone number. The Penta offers a number of communication options and supports either pulse or DTMF dialing.

Central Station Communication

The Penta's on-board dialer uses the following protocols for central station communication:

- Contact ID
- 20pps 4/2 no parity
- 10pps 3/1 no parity

Follow-me

Using the 'Follow-me' feature, the panel informs the user that an event has occurred by dialing the user's telephone number and sounding two beeps. After hearing the two beeps, pressing 3, 6, 9 or # on the telephone sounds a number of tones to indicate exactly which type of alarm has occurred. The number of tones indicates the type of alarm generated.

1 tone	= Alarm from zone 1	1 long	= F key alarm
2 tones	= Alarm from zone 2	Tone	
3 tones	= Alarm from zone 3	2 long	= E or P key alarms, zone
4 tones	= Alarm from zone 4	Tones	or keypad tamper

After the alarm tones have been sounded, pressing 3, 6, 9 or # on the telephone either causes the panel to hang up or, if additional alarms have occurred, sound another set of alarm tones. **Note: Electronics Line recommends using a telephone unit with Continuous DTMF mode. If only Burst mode is available it may be necessary to press more than once. If using the Follow-me feature, program the relevant event codes (addresses 11 – 18) with any value greater than 00.**

Voice Message (3601)

The 3601 is an add-on module that enables the recording of a short message. In the event of an alarm, the panel dials the user's telephone number and this message is played back. Pressing 3, 6, 9 or # on the telephone acknowledges that the message has been received.

1.4: Remote Programming

Electronics Line's remote programming software enables programming and operation from a PC. The software provides a comprehensive interface to the Penta control panel, facilitating and cutting down the time taken in programming the system. RP access is gained using a four digit code programmed at address 57. Without this code all remote programming and operation is restricted.

Answering Machine Override

Answering machine override enables the control panel to distinguish between regular incoming calls and a communication attempt by the RP (remote programmer) software. An RP call is identified by the control panel as a sequence of two calls within a 30-second time window.

1. The control panel does not answer the first incoming call.
2. The control panel opens a 30-second time window from the moment the telephone stops ringing.
3. The control panel answers after 1 ring and RP communication is established.

This method enables the panel to share the same telephone line with answering machines and fax machines.

RP Callback

RP call back is a toll-saver feature that makes remote programming more cost-effective. When the remote programmer contacts the panel, the panel hangs up and calls the telephone number programmed at address 56.

Chapter Two: Installation

2.1: Parts and Options

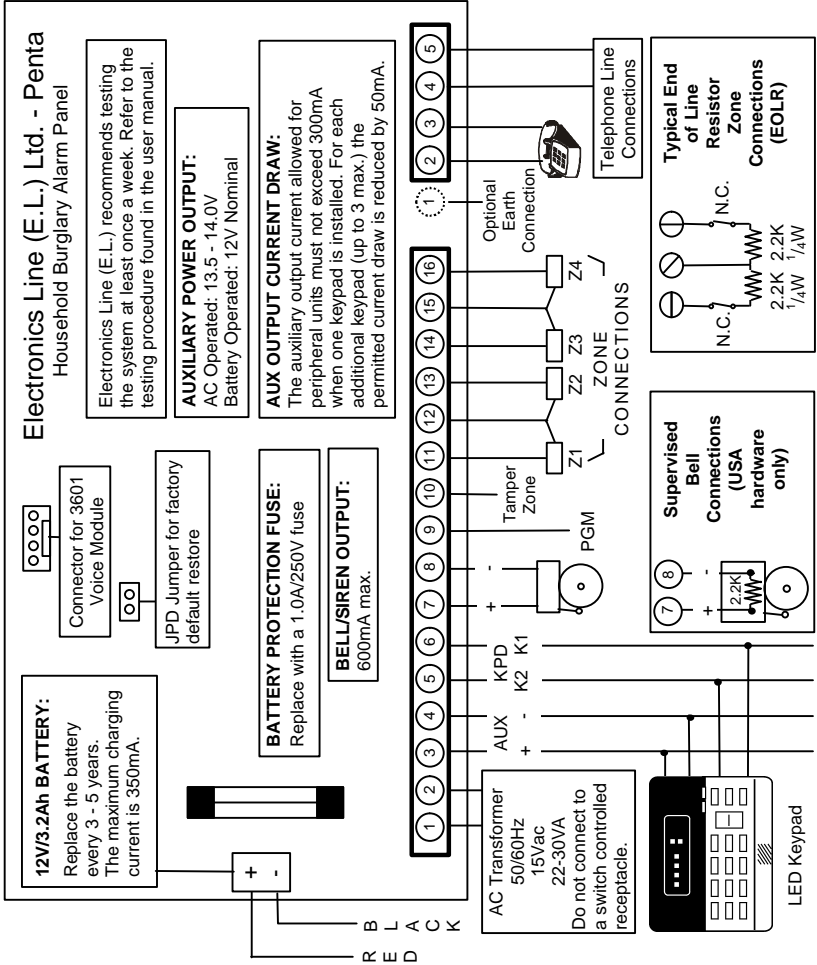
Standard Parts

Penta household burglary alarm control panel	1
3104 LED keypad	1
2.2K Ω ¼W resistors	5
6 x ¼ screws	4
Mounting studs	4
PCB support	1
Installation manual	1
User manual	1

Optional Parts

Additional 3104 LED keypad	
3601 voice message module	
Remote Programmer up/downloading software	
3911 remote programming device	
230 - 15VAC transformer	
Cabinet tamper protection switch	

2.2: Wiring Diagram



2.3: Terminal Connections

15-16.5Vac Input

Terminals 1 & 2: Connect a 15Vac transformer rated at 22-30VA, using 18 AWG wire.

Auxiliary Power Output

Terminals 3(+), 4(-): The auxiliary power output connections supply power to keypads and peripheral units such as detectors and other powered sensors.

Keypad Data Bus Connections

Terminals 5 & 6: Connect up to three individually addressed LED keypads to terminals 5 (K2), and 6 (K1). Make sure that the wires are connected to the same connections on the keypad, see 2.4: Mounting the Keypad.

Bell Power Output

Terminals 7(+), 8(-): Connect these terminals to supply power to the bell. The bell power output supplies AUX power, rated at 600mA max.

Bell Supervision (USA hardware only)

The bell connections must be terminated by a 2.2K $\frac{1}{4}$ W resistor as shown in Figure 2.1.

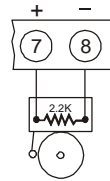


Figure 2.1: Bell Supervision Connections

PGM Programmable Output

Terminal 9: The PGM output switches to ground when activated, enabling the connection of additional system status indicators. Connect the PGM output as shown in the Figure 2.2.

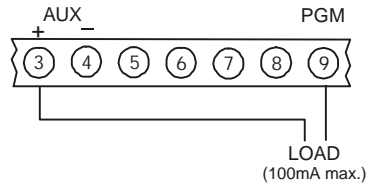


Figure 2.2: PGM Output Connections

Tamper Zone/Keyswitch Connections

Terminal 10: Connect a tamper switch or ON/OFF keyswitch to terminals 10(+) and 12(-). **Note: If neither the tamper zone nor keyswitch are used, short terminal 10 to 12 and define this zone as Tamper Zone at Address 01.**

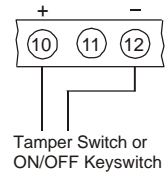


Figure 2.3: Tamper Zone/Keyswitch Connections

Zone Connections

Terminals 11, 12, 13, 14, 15 & 16:

ZONE 1: Terminals 11(+) & 12(-)

ZONE 2: Terminals 13(+) & 12(-)

ZONE 3: Terminals 14(+) & 15(-)

ZONE 4: Terminals 16(+) & 15(-)

Telephone Line

Terminals 17, 18, 19, 20: The telephone line should be connected (using the standard Telco wires - minimum 26 AWG) as follows: 17 - Home Tip, 18 - Home Ring, 19 - Telco Tip and 20 - Telco Ring.

Note: The equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point. In the event of problems you should contact your equipment supplier in the first instance.

2.4: Mounting the Keypad

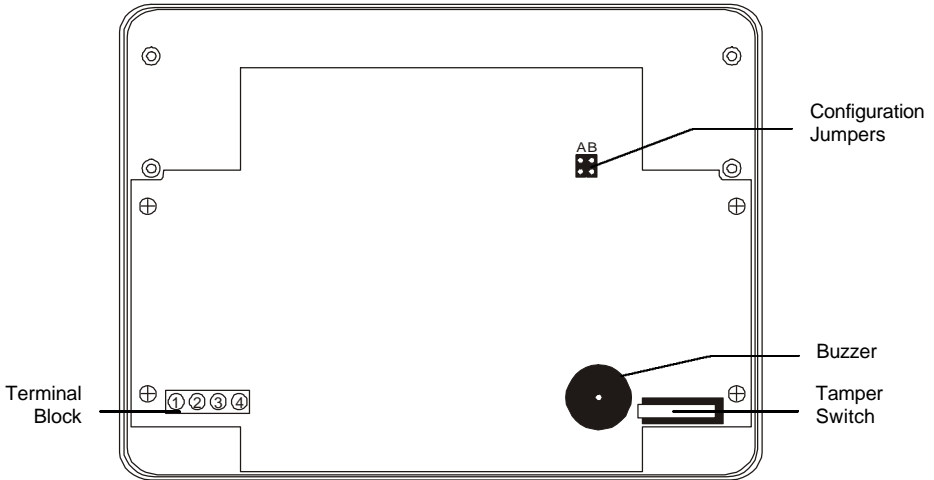


Figure 2.4: 3104 LED Keypad (cover removed)

Up to 3 LED keypads can be connected to the Penta control panel. To mount the keypad:

1. Separate the front and back cover of the keypad by pressing the locking tabs, situated at the bottom of the keypad, with a small flathead screwdriver.
2. Pull the keypad wires through the opening in the back cover nearest the terminal block and mount the back cover to the wall.
3. Define the keypad address by configuring jumpers A & B according to the following diagram.

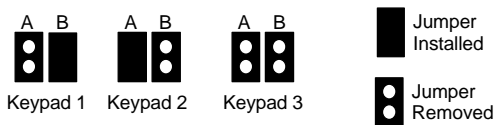


Figure 2.5: Keypad Jumper Configuration

4. Connect the keypad to the control panel according to the following diagram.

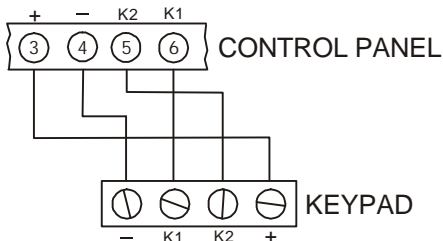


Figure 2.6: Keypad Connections

5. Reassemble the front and back cover of the keypad.

2.5: Turning on the System

Once all of the systems components are properly connected to their destination terminals, the Penta is ready to be turned on. To avoid the risk of electrical shock or damage to the control panel, make sure that both the AC supply and the battery are connected properly before plugging in the system. If you experience any difficulties in applying power to the unit, please contact Electronics Line's Technical Support Department. The Penta control panel is supplied with a default program that includes typical programming data which means that minimum programming is required for typical installations.

To turn on the system:

1. Install the JPD jumper located at the top of the control panel board.
2. Reapply power and wait for 10 seconds; the keypad beeps to indicate the end of the 10 second period.
3. Disconnect both the AC and battery power supply.
4. Remove the JPD jumper.
5. Reapply power and wait for 10 seconds; the keypad beeps to indicate that the default program has been restored.

The default settings can be reset at any time by disconnecting the power supply and repeating the above procedure.

Chapter Three: System Operation

3.1: General

All operation and programming of the Penta can be performed using any one of the three LED keypads that can be installed with each system. This section offers a complete explanation of the keypad functions and of the LED display, incorporating a summary of command codes used in system operation.

3.2: Keypad Layout

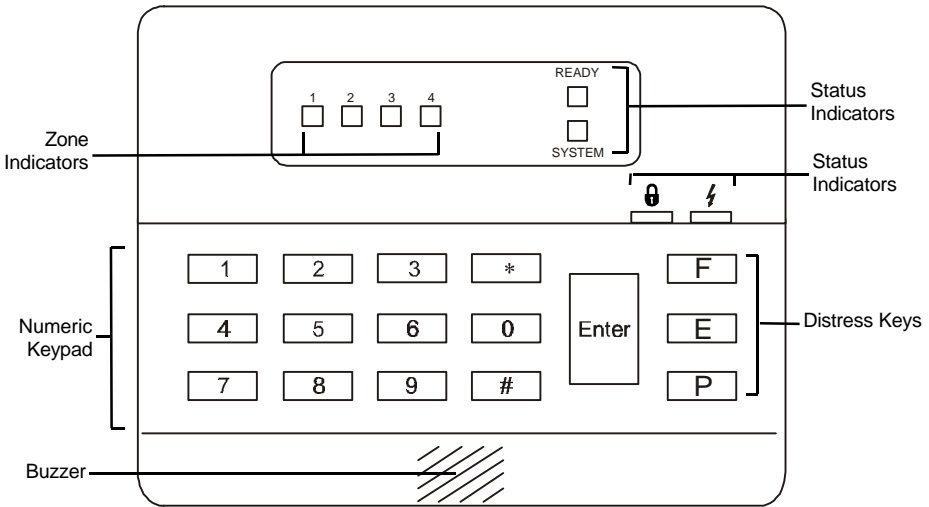


Figure 3.1: Keypad Layout

The numeric keypad is used for operation and programming of the system. Additionally, three distress keys enable the user to send one of three individual distress signals to the central station - see 3.5: Distress Keys for further information.

LED Display

1 - 4: LEDs 1 - 4 are used to display zone status. The corresponding LED lights up if a zone is open. If a zone is bypassed the corresponding LED blinks.

READY: The Ready LED lights up to indicate that there are no open zones or tamper conditions and the system is ready to be armed.

SYSTEM: The System LED blinks to indicate that new events have been recorded in one of the logs and when displaying additional system information such as programming mode or bypass mode.



ARMED: The Armed LED lights to indicate the system is armed or in programming mode and flashes during the exit delay.



POWER: The Power LED lights up when both AC & battery power are OK, blinks when the battery is low & AC power is OK, and goes out in the event of AC failure.

3.3: Command Codes

Commands are executed by pressing the '*' button followed by the corresponding command number and, in some cases, a valid user code. The following is a summary of the command codes used in system operation.

*0	<i>Quick Arm</i>	*5 + (User Code 1)	<i>Program User Codes</i>
*1 + (User Code)	<i>Bypass Mode</i>	*6	<i>Zone Chime</i>
*2	<i>Emergency/Trouble Event Log</i>	*7 + (Installer Code)	<i>Programming Mode</i>
*3	<i>Zone Alarm Event Log</i>	*8 + (User Code)	<i>Forced Arming</i>
*41	<i>Bell/LED Test</i>	*9 + (User Code)	<i>Stay Arming</i>
*42 + (User Code 1)	<i>Walk Test</i>	ENTER 1 + (User Code 1)	<i>Stop Communications</i>

3.4: Arming/Disarming

The following section explains the various arming and disarming methods.

Arming

When all zones are secured the system can be armed normally. Arming the system transmits a message to the central station identifying which user performed the operation.

To arm the system:

1. Check that all zones are closed; the Ready LED lights up to indicate that the system is ready to be armed.
2. Enter a valid user code; the keypad beeps until the end of the exit delay.

Forced Arming

Forced arming enables the user to arm the system with open zones. Electronics Line recommends waiting until all of the zones are secured and the system can be armed normally. **Note: If zones are still not secured after the exit delay has ended, an alarm will be generated.**

To force arm the system:

1. Press *, 8.
2. Enter a valid user code; the keypad beeps until the end of the exit delay.

Quick Arming

This feature allows the Penta to be armed without a valid user code. Quick arming the system transmits an "Armed by User 1" message to the central station.

To "Quick" arm the system:

1. Check that all zones are closed; the Ready LED lights up to indicate that the system is ready to be armed.
2. Press *, 0; the keypad beeps until the end of the exit delay.

Stay Arming

This feature only arms perimeter zones – i.e. Perimeter, Perimeter with Delay and Fast Loop Perimeter zones. This allows the user to stay within the protected area while the system is armed.

To “Stay” arm the system:

1. Check that all zones are closed apart from the interior zones; the Ready LED lights up to indicate that the system is ready to be armed.
2. Press *, 9.
3. Enter a valid user code; the keypad beeps until the end of the exit delay.

Immediate Arming

The system can be operated without an entry/exit delay. Pressing * during the exit delay or when the system is armed cancels both the exit and entry delay times.

Note: It is not recommended to use this feature with an external keypad.

Disarming

The Penta can be disarmed by entering a valid user code during the entry delay. If an error is made entering the code, press '#' and enter the code again. When the code is accepted the Armed LED and the pulsed delay tone are turned off. If the correct code is not entered by the end of the delay time, an alarm will be generated.

Keyswitch Arming/Disarming

The system can be armed and disarmed using an ON/OFF keyswitch. The keyswitch has two operation modes.

1. Latching - closing the keyswitch arms the system, opening disarms the system.
2. Momentary - opening and closing the keyswitch either arms or disarms the system.

3.5: Distress Keys

In the case of an emergency, 3 types of alarms can be generated by pressing and holding down the desired distress key for more than 2 seconds. These alarms will send the relevant distress codes to the central station. The distress keys are as follows:



FIRE: Sounds the fire bell, sends the 'Fire' event code to the central station (address 17) and registers in the Emergency/Trouble event log.



EMERGENCY: Sends the 'Emergency' event code to the central station (address 18), sounds the siren (if programmed at address 01) and registers in the Emergency/Trouble event log.



POLICE: Sends the 'Police' event code to the central station (address 16), sounds the siren (if programmed at address 01) and registers in the Emergency/Trouble event log.

3.6: User Codes

The Penta is capable of maintaining four user codes, a duress code and an installer code. Each of these codes are four digits long. Of the four user codes, only User Code 1 (default 1111) has authorization to modify other user codes and the duress code. The installer's code (default 1234) is the only user code which grants access to the programming parameters and is programmable at address 59.

To program user codes 1-4:

1. Press *, 5.
2. Enter User Code 1; the Armed and System LEDs flash and the zone LEDs indicate the programming status of each user code as follows:

OFF: NOT PROGRAMMED
ON: PROGRAMMED
FLASHING: CURRENTLY BEING PROGRAMMED

3. Enter the number of the code to be changed (1-4); the requested zone LED flashes.
4. Enter the new user code; the LED stops flashing.
5. Enter the next code to be changed or press # to exit.

Note: If the new code is identical to an existing user code, an error tone will be sounded and the new code will not be accepted.

To erase a user code:

1. Press *, 5.
2. Enter User Code 1.
3. Enter the number of the code to be erased (1-4); the requested zone LED flashes.
4. Enter *, *, *, *; the LED stops flashing and the code is erased.
5. Enter the next code to be erased or press # to exit.

Note: Do not erase User Code 1! Erasing this code denies the user the ability to program user codes. If User Code 1 is accidentally erased, reset the default program as described in 2.5: Turning on the System.

Duress Code

In the event that the user is forced to disarm the system and/or cancel the bell, entering the duress code will send a silent alarm to the central station.

To program the duress code:

1. Press *, 5.
2. Enter User Code 1.
3. Press 5; the Ready LED flashes.
4. Enter a new duress code or *, *, *, * to erase the existing code.
5. Press # to exit.

3.7: Zone Bypassing/Unbypassing

The Penta offers the user the ability to bypass zones. When a zone is bypassed, it is ignored by the system and will not generate an alarm when tripped.

To bypass a zone:

1. Press *, 1.
2. Enter a valid user code; the System LED flashes and the LEDs of any currently bypassed zones light up.
3. Enter the number of the zone to be bypassed; the corresponding zone LED lights up.
4. Press # to exit bypass mode; the bypassed zones flash.

To unbypass a zone:

1. Press *, 1.
2. Enter a valid user code; the System LED flashes and the LEDs of any currently bypassed zones light up.
3. Enter the number of the zone to be unbypassed; the corresponding zone LED turns off.
4. Press # to exit bypass mode.

Note: Disarming the system automatically unbypasses all bypassed zones.

3.8: Event Logs

The event logs record events that the system has undergone since the last arming. If any events have been recorded in either event log, the System LED flashes until the relevant event log has been viewed. In the event that a trouble condition still exists, the System LED continues to flash until the condition has been remedied.

Emergency/Trouble Event Log

Zone tamper, keypad trouble or any of the three distress key alarms are registered in the Emergency/Trouble event log.

To view the Emergency/Trouble event log:

1. Press *, 2; the various trouble conditions are indicated by the zone LEDs. The following is a summary of the trouble condition that each LED indicates when lit:

1 - Tamper or Keypad Trouble	2 - Alarm from P key
3 - Alarm from F key	4 - Alarm from E key
2. Press # to exit the event log.

Note: The event logs can only be viewed when the system is disarmed.

Zone Alarm Event Log

The Zone Alarm event log displays the zones from which an alarm was generated since the system was last armed.

To view the Zone Alarm event log:

1. Press *, 3; an alarm from a specific zone is indicated by the corresponding zone LED.
2. Press # to exit the event log.

Both logs are automatically reset when the system is next armed.

3.9: Additional Operations

Bell Cancel

To cancel the bell:

- Enter a valid user code or turn the keyswitch as if disarming the system.

Bell/LED Test

To perform a bell/LED test:

- Press *, 4, 1; the siren is sounded and all LEDs on the keypad are lit for a period of two seconds.

Walk Test

Walk test mode enables the testing of peripheral detection devices, such as PIR detectors and magnetic door contacts. In this mode, when a zone is opened or closed, the keypad chimes.

To perform a walk test:

1. Press *, 4, 2.
2. Enter User Code 1; the Ready, System, Power and Armed LEDs flash to indicate that the system is in Walk Test mode. To end Walk Test mode, press #. *This mode is automatically terminated after 4 minutes.*

Note: The Tamper Zone always generates an alarm if opened, even if the system is in Walk Test mode.

Stop Communications

To cancel the transmission of all unsent messages:

1. Press ENTER, 1.
2. Enter User Code 1; all communication buffers are cleared and all communications stop immediately.

Zone Chime On/Off

The keypad can be set to chime when Perimeter With Delay or Perimeter zones are opened or closed. This feature only functions when the system is disarmed.

To toggle the zone chime On or Off:

- Press *, 6 while the system is disarmed.

The keypad will sound a continuous tone to indicate "Zone Chime ON" or two short beeps to indicate "Zone Chime OFF".

Keypad Backlight On/Off

To toggle the backlight of any keypad On or Off:

- Press and hold down # for more than 2 seconds.

4.1: General

The Penta control panel may be programmed using either the LED keypad or Electronics Line's Remote Programmer. If using the Remote Programmer, refer to the instructions provided with the software.

4.2: Guide to Programming

The control panel has 61 parameter addresses allowing precise custom configuration of the system to suit the user's needs. The options for each address are listed in section 4.3: Programming Parameters. All of the programming parameters are stored in the Penta's non-volatile EEPROM memory which stores the data in the event that power is disconnected. Before programming directly after installing the system, restore the default parameters as explained in 2.5: Turning on the System.

To program the system:

1. Make sure the system is disarmed.
2. Press *, 7.
3. Enter the Installer Code (the default installer code is **1234**); the Armed LED lights up and the System LED flashes.
4. Enter the two-digit parameter number to be programmed; the Ready LED lights up and the Armed LED turns off.
5. Enter a new value or press # to cancel; if the value has been successfully changed, the keypad sounds an acknowledge tone to confirm and the Ready LED turns off.
6. Press # to exit programming mode.

Note: The default Installer Code should be changed immediately after installing the system.

Hexadecimal Data

Some of the programming parameters require a hexadecimal value to be entered. To enter hexadecimal data, use the following combination of digits for hexadecimal numbers greater than 9.

*, 0 = A *, 1 = B *, 2 = C *, 3 = D *, 4 = E *, 5 = F

Keypad Tones

The keypad sounds a series of tones to aid programming. These tones offer the installer status indication during programming. The following is a summary of the keypad programming tones.

Short Beep = Confirmation of each keystroke
Long Beep = Acknowledgment of a successful entry
Low Beeps = Error, illegal entry
Continuous Beeps = Entry/Exit delay

4.3: Programming Parameters

The following section lists the Penta's programming parameters which are used to configure the system. For a listing of the default parameters please contact your local dealer.

Address 00: Communication Attempts

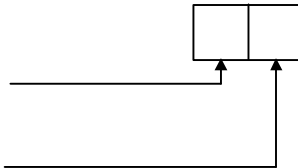
The control panel's attempts to communicate with the central station are organized in rounds. A communication round is a set of dialing attempts. If the panel does not succeed in sending the event message to the primary number within this number of attempts, the backup number is dialed the same number of times. A new round will begin 30 minutes after the last dialing attempt. The number of communication rounds is defined in the first digit of this address. The number of dialing attempts in each round is defined in the second digit. **Note: To Disable Communications, enter 00 at this address.**

First Digit: Communication Rounds

Enter a value between 1 – F
(F = Unlimited rounds until communication is established)

Second Digit: Dialing Attempts

Enter a value between 1 – F



Address 01: Miscellaneous

This address offers a number of options for the system's setup. Enter 5 digits at this address according to the following:

First Digit: Keypads

- 0 - No Keypads
- 1 - One Keypad
- 2 - Two Keypads
- 3 - Three Keypads

Second Digit: Keyswitch Function

- 0 - Latching
- 1 - Momentary

Third Digit: Tamper Zone Definition

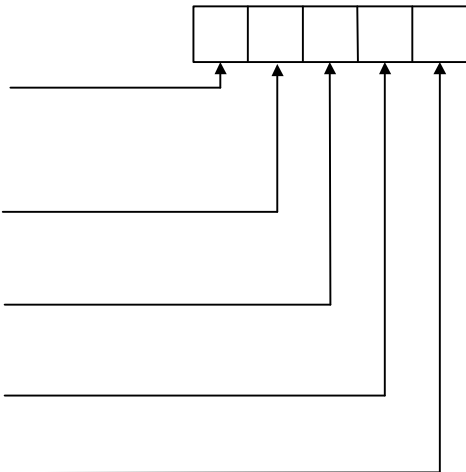
- 0 - Arm/Disarm Keyswitch
- 1 - Tamper Zone

Fourth Digit: E Key Alarm

- 0 - Audible
- 1 - Silent

Fifth Digit: P Key Alarm

- 0 - Audible
- 1 - Silent



Address 02: Communication Options

This address consists of the various options used in communication and/or remote programming. Enter five digits according to the following.

First Digit: Protocol

- 0 - 20pps 4/2 no parity
- 1 - Follow Me
- 2 - Contact ID
- 3 - Voice Message (3601)
- 4 - 10pps 3/1 no parity

Second Digit: RP Access Type

- 0 - Passcode
- 1 - Callback

Third Digit: RP Access

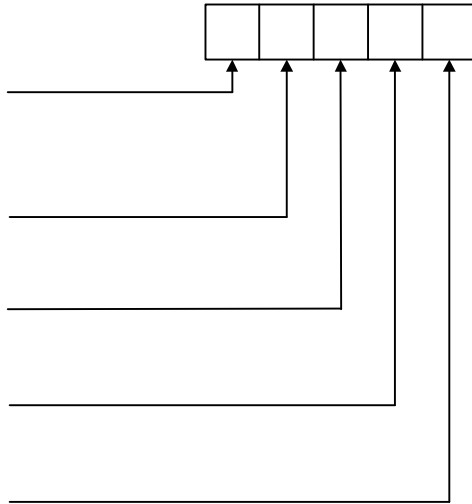
- 0 - Disable RP Access
- 1 - Enable RP Access

Fourth Digit: Handshake

- 0 - 1400Hz Handshake
- 1 - 2300Hz Handshake

Fifth Digit: Dialing

- 0 - Pulse
- 1 - DTMF



Address 03: Zone 1 Definition

One of six response types can be assigned to zone 1. Each zone type can be programmed as 'Silent' or 'Audible'. A 'Silent' zone will not activate a siren or bell when the zone is tripped.

- 00 - Perimeter zone with delay (Silent)
- 10 - Perimeter zone with delay (Audible)
- 01 - Perimeter zone (Silent)
- 11 - Perimeter zone (Audible)
- 02 - Conditional zone (Silent)
- 12 - Conditional zone (Audible)
- 03 - Interior zone (Silent)
- 13 - Interior zone (Audible)
- 04 - 24hr zone (Silent)
- 14 - 24hr zone (Audible)
- 05 - Fast Loop Perimeter Zone (Silent)
- 15 - Fast Loop Perimeter Zone (Audible)

Address 04: Zone 2 Definition

Same as above for zone 2.

Address 05: Zone 3 Definition

Same as above for zone 3.

Address 06: Zone 4 Definition

Same as above for zone 4.

Address 07: Entry Delay Time

The entry delay timer determines the amount of time the user has to disarm the system before an alarm is activated. The entry delay is only initiated if the premises are entered through a zone defined as 'perimeter with delay'. Enter a hexadecimal value between 1 and 255 seconds at this address using the hexadecimal conversion chart in Appendix A.

Address 08: Exit Delay Time

The amount of time the user has to leave the premises after arming is determined by the exit delay timer. An open zone will not activate an alarm during this period. Enter a hexadecimal value between 1 and 255 seconds at this address using the hexadecimal conversion chart in Appendix A.

Address 09: Bell Cut-Off Time

The bell cut-off is the period of time that the bell or siren will be activated after an alarm has occurred. Enter a value between 1 and 5 minutes at this address.

Address 10: PGM Options

The PGM (Programmable Output) can be used for indication of certain status or trouble conditions. When the PGM output is activated terminal 9 switches to ground. Choose the PGM output setting from the following table.

Value	Name	Activated By	Deactivated By
00	PGM Disabled	---	---
01	Arm/Disarm	System Armed	System Disarmed
02	Entry/Exit	Entry/Exit Tone Follower	Entry/Exit Tone Follower
04	Communication	System in Communication	End of Communication
08	AC Loss	AC Loss	AC Restore
10	Bell Follower	Bell Follower	Bell Follower
20	Duress	Duress Code	(deactivated after 2 seconds)
40	Alarm	System in alarm	Arming/Disarming/View log [†]
80	Chime Follower	Keypad Chime Follower	Keypad Chime Follower

Event Codes

All events can be programmed to transmit a two digit event code message to the central station. These codes are usually assigned by the central station - consult the central station operator/owner for a listing of the different event codes. To disable an event code program the code as 00.

Address 11: Alarm from Zone 1*

Address 12: Alarm from Zone 2*

Address 13: Alarm from Zone 3*

Address 14: Alarm from Zone 4*

Address 15: Alarm from Tamper Zone*

[†] To deactivate the PGM output, the relevant log must be viewed.

* When using the Follow-me feature, program these addresses with a value greater than 00.

Address 16: [P] Key Alarm*
Address 17: [F] Key Alarm*
Address 18: [E] Key Alarm*
Address 19: Zone 1 Restore
Address 20: Zone 2 Restore
Address 21: Zone 3 Restore
Address 22: Zone 4 Restore
Address 23: Tamper Zone Restore
Address 24: [P] Key Alarm restore
Address 25: [F] Key Alarm restore
Address 26: [E] Key Alarm restore
Address 27: System Armed (User Code 1)
Address 28: System Armed (User Code 2)
Address 29: System Armed (User Code 3)
Address 30: System Armed (User Code 4)
Address 31: System Disarmed (User Code 1)
Address 32: System Disarmed (User Code 2)
Address 33: System Disarmed (User Code 3)
Address 34: System Disarmed (User Code 4)
Address 35: System Disarmed (Duress Code)
Address 36: Low Battery
Address 37: AC Loss
Address 38: Bell Trouble**
Address 39: Keypad Trouble
Address 40: Low Battery Restore
Address 41: AC Loss Restore
Address 42: Bell Trouble Restore**

* When using the Follow-me feature, program these addresses with a value greater than 00.

** USA hardware versions only.

Address 43: Keypad Trouble Restore

Address 44: Bell Cancel

Address 45: Periodic Test

Address 46: Bypass Zone 1

Address 47: Bypass Zone 2

Address 48: Bypass Zone 3

Address 49: Bypass Zone 4

Address 50: Unbypass Zone 1

Address 51: Unbypass Zone 2

Address 52: Unbypass Zone 3

Address 53: Unbypass Zone 4

Telephone numbers

Address 54: Primary Telephone Number

The primary telephone number is the first number that is dialed when an event occurs. A maximum of 16 digits can be entered at this address. To add a two-second pause, enter B (*, 1). To switch from pulse to DTMF dialing enter E (*, 4). These hexadecimal digits, B and E, are included in the 16 digit total. Press ENTER after the last digit of the telephone number has been programmed.

Address 55: Backup Telephone Number

If the panel fails to communicate with the primary number within a communication round, the backup telephone number is dialed. The backup telephone number is programmed in the same way as the primary telephone number (address 54).

Address 56: RP Callback Telephone Number

Remote programming communication can be established using two methods, passcode and callback (see address 02, second digit). If RP callback is selected the panel receives a call from the remote programmer, hangs up and calls back using the telephone number programmed at this address. The RP callback telephone number is programmed in the same way as the primary telephone number (address 54).

Note: To disable a telephone number, enter the appropriate address and press ENTER. It is not possible to program a backup number unless a primary number has been programmed.

Address 57: RP Access Code

This 4-digit code grants access to the remote programmer. **Note: Do not enter Hex digits.**

Address 58: Account Number

When an event code is sent, the central station receives an account number to identify the customer. Enter a 4-digit account number at this address.

Address 59: Installer Code

The installer code is a 4-digit code which grants access to programming mode. The default for this code (1234) should be changed immediately after installing the system.

Note: Do not enter Hex digits.

4.4: Periodic Test Timer Reset

The periodic test event code (address 45) is sent to the central station once every 24 hours. The first transmission of this code is sent 12 hours after power is applied to the control panel. If a different time is required, the control panel can be programmed to send the first periodic test message 24 hours after the periodic test timer is reset.

To reset the periodic test timer:

1. Press *, **7** to enter programming mode.
2. Enter the Installer Code; the Armed LED lights up and the System LED flashes.
3. Enter **99**; the periodic test timer is reset and the periodic test code is sent to the central station.
4. Press # to exit programming mode.

Appendix A: Hexadecimal Conversion Chart

The following is a decimal to hexadecimal conversion chart to be used as an aid in programming:

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
00	00	32	20	64	40	96	60	128	80	160	A0	192	C0	224	E0
01	01	33	21	65	41	97	61	129	81	161	A1	193	C1	225	E1
02	02	34	22	66	42	98	62	130	82	162	A2	194	C2	226	E2
03	03	35	23	67	43	99	63	131	83	163	A3	195	C3	227	E3
04	04	36	24	68	44	100	64	132	84	164	A4	196	C4	228	E4
05	05	37	25	69	45	101	65	133	85	165	A5	197	C5	229	E5
06	06	38	26	70	46	102	66	134	86	166	A6	198	C6	230	E6
07	07	39	27	71	47	103	67	135	87	167	A7	199	C7	231	E7
08	08	40	28	72	48	104	68	136	88	168	A8	200	C8	232	E8
09	09	41	29	73	49	105	69	137	89	169	A9	201	C9	233	E9
10	0A	42	2A	74	4A	106	6A	138	8A	170	AA	202	CA	234	EA
11	0B	43	2B	75	4B	107	6B	139	8B	171	AB	203	CB	235	EB
12	0C	44	2C	76	4C	108	6C	140	8C	172	AC	204	CC	236	EC
13	0D	45	2D	77	4D	109	6D	141	8D	173	AD	205	CD	237	ED
14	0E	46	2E	78	4E	110	6E	142	8E	174	AE	206	CE	238	EE
15	0F	47	2F	79	4F	111	6F	143	8F	175	AF	207	CF	239	EF
16	10	48	30	80	50	112	70	144	90	176	B0	208	D0	240	F0
17	11	49	31	81	51	113	71	145	91	177	B1	209	D1	241	F1
18	12	50	32	82	52	114	72	146	92	178	B2	210	D2	242	F2
19	13	51	33	83	53	115	73	147	93	179	B3	211	D3	243	F3
20	14	52	34	84	54	116	74	148	94	180	B4	212	D4	244	F4
21	15	53	35	85	55	117	75	149	95	181	B5	213	D5	245	F5
22	16	54	36	86	56	118	76	150	96	182	B6	214	D6	246	F6
23	17	55	37	87	57	119	77	151	97	183	B7	215	D7	247	F7
24	18	56	38	88	58	120	78	152	98	184	B8	216	D8	248	F8
25	19	57	39	89	59	121	79	153	99	185	B9	217	D9	249	F9
26	1A	58	3A	90	5A	122	7A	154	9A	186	BA	218	DA	250	FA
27	1B	59	3B	91	5B	123	7B	155	9B	187	BB	219	DB	251	FB
28	1C	60	3C	92	5C	124	7C	156	9C	188	BC	220	DC	252	FC
29	1D	61	3D	93	5D	125	7D	157	9D	189	BD	221	DD	253	FD
30	1E	62	3E	94	5E	126	7E	158	9E	190	BE	222	DE	254	FE
31	1F	63	3F	95	5F	127	7F	159	9F	191	BF	223	DF	255	FF

Appendix B: Glossary of Terms

24hr Zone A zone which is always active regardless of whether the system is armed or disarmed. Opening a 24hr zone always generates an alarm.

A

AC Loss The disruption of AC power. In the event of AC loss, the panel waits five minutes before sending an event message.

Answering Machine Override The method used in RP communication allowing the control panel to share a telephone line with answering machines, fax machines etc.

Armed The state during which the control panel is fully activated. In most cases, when the system is armed, opening a zone generates an alarm.

Audible Alarm An alarm that sounds the bell/siren.

Auxiliary Power Output The Auxiliary Power Output supplies power to all peripheral units (keypads, detectors etc.)

B

Backup Telephone Number The telephone number dialed if the panel fails to communicate with the primary telephone number.

Beep A tone sounded by the keypad. Four different kinds of beep are sounded for keystroke confirmation, successful entry acknowledgement, illegal entry and exit/entry delay.

Bell Cut-Off The programmable amount of time the bell is sounded when an audible zone generates an alarm.

Bell/LED Test An operation that checks if the bell/siren and keypad LEDs are functional. The bell test sounds the bell and lights all the LEDs on the keypad for a period of two seconds.

Bypassed Zone A zone which is ignored by the system. No alarm is generated from a bypassed zone even when the system is armed.

C

Callback A toll saver feature which cuts the cost of remote programming. When a call is received from the remote programmer the panel hangs up and calls the RP Callback telephone number.

Central Station The monitoring service the panel alerts when an alarm is generated.

Chime *see Zone Chime*

Conditional Zone A conditional zone does not generate an alarm if opened during the entry delay.

D

Default Settings The factory programmed parameters designed to facilitate programming.

Delay The exit/entry delay times are programmed to allow the user time to arm or disarm the system without generating an alarm.

Disarmed When the system is disarmed, only 24hr zones and distress keys are capable of generating an alarm.

Distress Keys The three distress keys (F, E and P) generate different types of alarm when pressed and held down for two seconds.

Duress Code Entering the duress code generates a silent alarm to indicate that the user is being forced to disarm the system or cancel the bell.

E

Entry Delay *See Delay*

Event Code The two-digit code transmitted to the central station to indicate that an event has occurred.

Event Log The two event logs record and display events the system has undergone since the last arming.

Exit Delay *See Delay*

F

Follow-Me A method of monitoring the system without connecting to a central station based monitoring service. In the event of an alarm, the panel dials the follow-me number and sounds a number of tones via the telephone.

Forced Arming Arming before the system is ready. If zones are still open when the exit delay has expired an alarm will be generated.

I

Immediate Arming Arming the system without an exit/entry delay.

Installer Code The code which grants access to programming mode.

Interior Zone A zone that is not armed during Stay arming

K

Keypad Trouble Condition brought about by improper definition of keypads or if a keypad has been disconnected.

Keyswitch Peripheral device connected to the tamper zone for arming and disarming the system by the turn of a key.

L

Latching One of the two keyswitch function modes. A latching keyswitch toggles the system to arm or disarm by one turn of the key (On or Off=Arm/Disarm).

Log *See Event Log*

Low Battery Condition brought about if the voltage supplied to the backup battery deteriorates to approximately 10.5V or less.

M

Magnetic Contacts Peripheral device mounted on doors incorporating a magnet that closes a circuit. Opening the door breaks the circuit and opens the zone to generate an alarm.

Master Code The only user code with the ability to program other user codes.

Momentary One of the two keyswitch function modes. A momentary keyswitch toggles the system to arm or disarm by turning the key on and off. (On & Off=Arm or Disarm).

P

Perimeter Zone Perimeter zones are armed during both regular and Stay arming and can be defined with or without an exit delay.

Periodic Test The periodic test event code is sent to the central station every 24 hours to indicate that the system is functional.

PGM Output Programmable output for connecting additional system status indicators.

Primary Telephone Number	The first telephone number dialed when an event occurs. If communication can not be established with the Primary telephone the the Backup telephone number is dialed.
Q	
Quick Arming	Arming the system without the need for a valid user code.
R	
Ready	The state in which all zones are closed and the system is ready to be armed.
Remote Programmer	The software developed by Electronics Line used for programming the system using a PC from a remote location or on-site.
Restore	The restoral of a trouble condition to its normal state. For example, if AC power is reconnected, an AC Loss Restore event code is sent to the central station.
RP	Abbreviation of Remote Programmer
RP Access Code	The code that grants access to the remote programmer. The RP Access Code prevents the system being sabotaged using unauthorized remote programming.
S	
Silent Alarm	An alarm that does not activate the bell/siren when generated.
Stay Arming	Arming the perimeter of the system while allowing free movement in the interior zones.
Stop Communications	An operation that clears all communication buffers and stops all communications immediately.
T	
Tamper Zone	The fifth zone which can be connected to a tamper switch protecting the control panel by generating an alarm when the metal housing is opened. Alternately, the tamper zone can be defined for use with an On/Off keyswitch.
Tone	<i>See Beep</i>
U	
Unbypass	The restoral of a bypassed zone to its original state.
User Code	A code that grants access to certain operational capabilities such as arming and disarming the system.
V	
Voice Message	A short message played by the 3601 module to announce an alarm over the telephone line.
W	
Walk Test	A mode that enables detection devices to be tested without generating an alarm.
Z	
Zone	The physical and logical connection of detection devices to the control panel.
Zone Chime	The tone sounded by a keypad on opening a perimeter zone when the system is disarmed.

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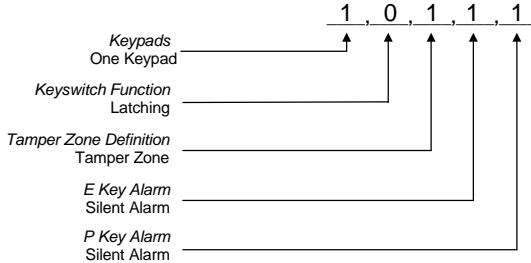
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Penta - Default Values

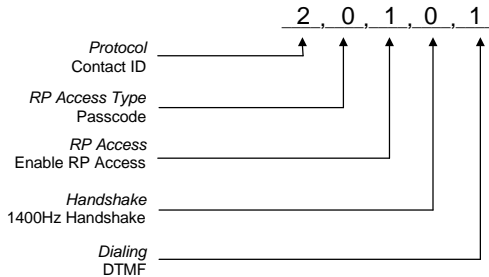
COMMUNICATION ATTEMPTS

(00) 3, 5 (3 communication rounds, 5 dialing attempts in each round)

(01) SYSTEM PARAMETERS



(02) COMMUNICATION PARAMETERS



ZONE DEFINITIONS

(03 - 06) Default value for all zones: 00 – Perimeter zone with delay (silent)

TIMERS

(07) 0, F h Entry Delay (15 Sec)

(08) 3, C h Exit Delay (60 Sec)

(09) 0, 5 h Bell Cut-Off (5 Min)

PGM OUTPUT FUNCTION

(10) 0, 0 (PGM Disabled)

EVENT CODES

(11 - 53) Default value for all event codes: 00

RP ACCESS CODE

(57) 0, 5, 0, 5

ACCOUNT NUMBER

(58) F, F, F, F

INSTALLER CODE

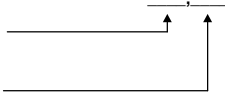
(59) 1, 2, 3, 4

Penta - Programming Worksheet

(00) COMMUNICATION ATTEMPTS

Communication Rounds
1-F (F=unlimited rounds)

Dialing Attempts
1-F



(01) SYSTEM PARAMETERS

First Digit: Keypads

- 0 - No Keypads
- 1 - One Keypad
- 2 - Two Keypads
- 3 - Three Keypads

Second Digit: Keyswitch Function

- 0 - Latching
- 1 - Momentary

Third Digit: Tamper Zone Definition

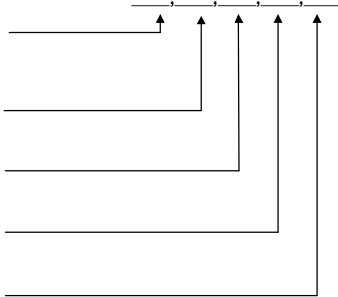
- 0 - Arm/Disarm Keyswitch
- 1 - Tamper Zone

Fourth Digit: E Key Alarm

- 0 - Audible
- 1 - Silent

Fifth Digit: P Key Alarm

- 0 - Audible
- 1 - Silent



(02) COMMUNICATION PARAMETERS

First Digit: Protocol

- 0 - 20pps 4/2 no parity
- 1 - Follow Me
- 2 - Contact ID
- 3 - Voice Message (3601)
- 4 - 10pps 3/1 no parity

Second Digit: RP Access Type

- 0 - Passcode
- 1 - Callback

Third Digit: RP Access

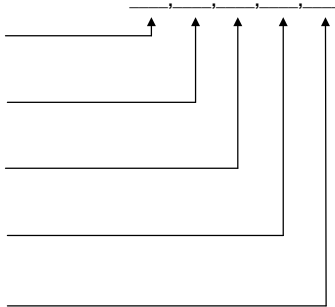
- 0 - Disable RP Access
- 1 - Enable RP Access

Fourth Digit: Handshake

- 0 - 1400Hz Handshake
- 1 - 2300Hz Handshake

Fifth Digit: Dialing

- 0 - Pulse
- 1 - DTMF



ZONE DEFINITIONS

(03) __, __ Zone 1 (04) __, __ Zone 2

(05) __, __ Zone 3 (06) __, __ Zone 4

- 00 - Perimeter with Delay (Silent)
- 01 - Perimeter (Silent)
- 02 - Conditional (Silent)
- 03 - Interior (Silent)
- 04 - 24hr (Silent)
- 05 - Fast Loop Perimeter (Silent)
- 06 - Perimeter with Delay (Audible)
- 07 - Interior (Audible)
- 08 - AC Loss/Restore
- 09 - Bell Follower
- 10 - Duress
- 11 - Perimeter (Audible)
- 12 - Conditional (Audible)
- 13 - Interior (Audible)
- 14 - 24hr (Audible)
- 15 - Fast Loop Perimeter (Audible)

TIMERS

(07) __, __ h Entry Delay (1-255 Sec)

(08) __, __ h Exit Delay (1-255 Sec)

(09) 0, __ Bell Cut-Off (1-5 Min)

PGM OUTPUT FUNCTION

- (10) __, __
- 00 - PGM Disabled
- 01 - Armed/Disarmed Status
- 02 - Entry/Exit Tone Follower
- 03 - Communication Status
- 04 - AC Loss/Restore
- 05 - Bell Follower
- 06 - Duress
- 07 - Alarm
- 08 - Chime Follower

EVENT CODES

- (11) __, __ Alarm from Zone 1
- (12) __, __ Alarm from Zone 2
- (13) __, __ Alarm from Zone 3
- (14) __, __ Alarm from Zone 4
- (15) __, __ Tamper Alarm
- (16) __, __ [P] Key Alarm
- (17) __, __ [F] Key Alarm
- (18) __, __ [E] Key Alarm
- (19) __, __ Zone 1 Restore
- (20) __, __ Zone 2 Restore
- (21) __, __ Zone 3 Restore
- (22) __, __ Zone 4 Restore
- (23) __, __ Tamper Restore
- (24) __, __ [P] Key Restore
- (25) __, __ [F] Key Restore
- (26) __, __ [E] Key Restore
- (27) __, __ Armed (User 1)
- (28) __, __ Armed (User 2)
- (29) __, __ Armed (User 3)
- (30) __, __ Armed (User 4)
- (31) __, __ Disarmed (User 1)
- (32) __, __ Disarmed (User 2)
- (33) __, __ Disarmed (User 3)
- (34) __, __ Disarmed (User 4)
- (35) __, __ Disarmed (Duress)
- (36) __, __ Low Battery
- (37) __, __ AC Loss
- (38) __, __ Bell Trouble*
- (39) __, __ Keypad Trouble
- (40) __, __ Low Battery Restore
- (41) __, __ AC Loss Restore
- (42) __, __ Bell Trouble Restore*
- (43) __, __ Keypad Trouble Restore
- (44) __, __ Bell Cancel
- (45) __, __ Periodic Test
- (46) __, __ Bypass Zone 1
- (47) __, __ Bypass Zone 2
- (48) __, __ Bypass Zone 3
- (49) __, __ Bypass Zone 4
- (50) __, __ Unbypass Zone 1
- (51) __, __ Unbypass Zone 2
- (52) __, __ Unbypass Zone 3
- (53) __, __ Unbypass Zone 4

TELEPHONE NUMBERS

- (54) __, __ Primary
- (55) __, __ Backup
- (56) __, __ RP Callback

E = switch from pulse to DTMF dialing B = 2 second pause

RP ACCESS CODE

(57) __, __, __, __

ACCOUNT NUMBER

(58) __, __, __, __

INSTALLER CODE

(59) __, __, __, __

* USA hardware versions only