BHS-i100

Installation and
Programming Reference

2/22/06 Draft

1 Regulatory Notices

1.1 FCC Rules Part 15

Changes or modifications not expressly approved by InGrid, Inc. can void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If interference generated by this unit is suspected, call Brink's Customer Care at 1-800-445-0872.

If this equipment does cause harmful interference to radio or television 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 radio/television antenna;
- Move the television or receiver away from the unit.
- Plug the unit and the TV/radio receiver into different outlets, i.e. not on the same circuit breaker.
- Contact Brinks Home Security or an experienced TV/Radio technician for additional suggestions.

Part Number SE430; FCC ID: S9PSE430
Part Number BK410; FCC ID: S9PBK410
Part Number IS440; FCC ID S9BIS440
Part Number BS450; FCC ID S9BBS450

1.2 ACTA Part 68

This equipment complies with Part 68 of the FCC Rules. Located on this equipment is a label that contains, among other information, the FCC registration number and the ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

ACTA Registration No. S9PAL01BSE430

The REN is used to determine the maximum number of devices that may be connected to your telephone line. Excessive RENs on a telephone line may result in devices not ringing in response to an incoming call. In most areas, the sum of all device RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g., 01 is a REN of 0.1). For earlier products, the REN is separately shown on the label.

This equipment is equipped with a USOC RJ31X connector. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack (RJ31X) which is part 68 compliant.

Alarm dialing equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system,

computer modem, etc.) already has the telephone line in use. To do so, alarm dialing equipment must be connected to a properly installed RJ31X jack that is electrically in series and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the following diagram. If you have any questions concerning these instructions, consult your local telephone company or a qualified installer about installing an RJ31X jack and alarm dialing equipment for you.

Should this equipment cause harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will provide you with advance notice. Otherwise they will notify you as soon as possible. The telephone company will also advise you of changes in its facilities, equipment, operations or procedures which could affect the operation of your equipment, allowing you the opportunity to maintain uninterrupted service. You will also be advised of your right to file a complaint with the FCC.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. You will be given advance notice in order to maintain uninterrupted service.
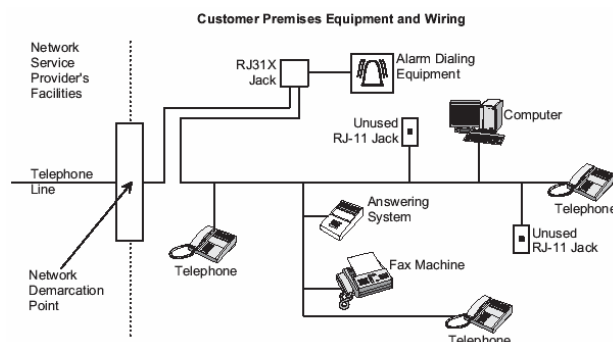
Figure 1

Should you experience trouble with the telephone lines, disconnect the equipment from the line to determine the source of the trouble. If it is determined that the equipment is malfunctioning, discontinue its use until the malfunction has been corrected. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telephone company cause to request the user to disconnect the equipment. If trouble is experienced with this equipment, for repair or warranty information, please contact Brinks Home Security Customer Care at (800) 445-0872.

This equipment must not be used on party lines or coin-operated phone lines.

2 InGrid Component Installation and Registration

Important Note	Please read and fully understand the BHS-i100 User's Manual before reading this manual or attempting to install the system. The User's Manual describes the system's features, functions, and user interface requirements in great detail. That information is not repeated in this manual

2.1 Components

The BHS-i100 is designed primarily for residential and small office applications. Its InGrid components communicate using encrypted two-way wireless signals. The only wired connections are AC power and telephone line. An BHS-i100 system can contain the following compatible components:

Grid Extenders	Model Number
Brinks Keypad	BK410
Signal Extender	SE430
Brinks Programmer	BP420

InGrid Sensors	Model Number
Window/Door Sensor	IS440
Keychain Remote	IK4xx
Auxiliary Siren	AS4xx

Ademco Transmitters	Model Number
Door/Window Transmitters	5816
Glass Break Detector	5853
Motion Detector	5800
Smoke Detector	5808LST

2.2 Maximum System Capacity

The maximum number of Grid Extenders in a single system is 5 plus one Programmer used for configuration of the system. Every BHS-i100 system must contain at least 1 Brinks Keypad and at least 1 Signal Extender.

The maximum number of sensors in a single system is 59, in any combination of InGrid and Ademco sensors.

2.3 Wireless Communications Range

There are two types of wireless communications used in a BHS-i100 system:

Grid Extender to Grid Extender – This communication operates at 2.4 GHz and uses a special frequency hopping technique to avoid interference with WiFi networks and cordless telephones that may be used in a customer's home. To further avoid the potential for conflict with WiFi networks, it is good installation practice to locate any Grid Extender at least 10 feet from a WiFi router that a customer may be using. This communication is encrypted to prevent eavesdropping. The Grid Extenders installed in a single customer's home, garage, and shed work together in a redundant grid network. If you were to draw a circle around all of the Grid Extenders in a single grid network, the maximum diameter of that circle must be less than 300 feet. The InGrid system will ensure installation within the acceptable range.

Sensor to Grid Extender – This communication operates at both 345 MHz and 2.4 GHz to support both InGrid sensors and Ademco sensors. Communication from InGrid sensors to Grid Extenders is two-way encrypted wireless. Communication from Ademco sensors to Grid Extenders is only one-way. Sensors may communicate to any Grid Extender. The maximum distance from a sensor to the closest Grid Extender must be less than 30 feet. The InGrid system will ensure installation within the acceptable range.

2.4 Terminology

The Grid Extenders operate in a "Grid (Mesh) Network", which means that any Grid Extender may wirelessly communicate with any other Grid Extender. Each Grid Extender has a copy of the system configuration. This enables automatic recovery if a Grid Extender is disabled or fails for any reason. In general, the BHS-i100 will designate one Grid Extender as the "Master" and any other Grid Extenders will be "Slaves". During the following registration process, the first Keypad installed will be designated as the "Master", although during normal operation this may change.

Signal Extenders are used for two purposes: (i) to extend the wireless range of the system into more areas of the home, and (ii) to connect to the telephone line. A Signal Extender connected to the telephone line is known as a "Gateway Signal Extender".

InGrid Sensors and Grid Extenders do not have any unique identity in their factory default condition. InGrid Sensors and Grid Extenders obtain their unique identity and become a permanent part of a customer's system through a "Registration" process. During Registration, these devices exchange "Encryption Keys" to prevent eavesdropping. Once registered to one customer's system, InGrid Sensors and Grid Extenders will not interact with any other neighboring security system.

The BHS-i100 system supports registration "over-the-air" like a cellular system. Over-the-air registration eliminates the time spent typing in serial numbers along with the potential risk of typing errors. The over-the-air process uses a triple-confirmation technique so that the probability of registering a neighbor's device into your system, or vice versa, is dramatically reduced.

2.5 Installation/Registration Process

The registration process is a repetitive loop that enables the installer to qualify each component one at a time and ensure that it is operating properly. Grid Extenders are installed and registered first to establish the wireless communications network in the home. Second, sensors are installed and immediately qualified using the wireless communications network that was setup in the first step. The repetitive loop is:

- Enable component registration in system
- Register new component within 60 seconds

- Wait for confirmation message on Programmer
- Confirm/qualify registration at new component
- Repeat for additional components

Finally, the installer may perform any additional system programming and a walk test before turning the system over to the customer.

2.6   Install Keypads

Keypads are surface-mounted in any convenient interior location, at a height that is convenient for use. The BHS-i100 supports up to 4 Keypads. More than one Keypad can be in use at one time.

NOTE	Once a Keypad obtains power from either its battery or the power supply, the Keypad should beep once every 30 seconds. This beeping indicates that the Keypad does not contain identity information and has not yet been registered into a BHS-i100 system. On initial power up, if the Keypad does not begin beeping once every 30 seconds, it will need to be reset to factory default condition.

2.6.1   Wiring & Mounting Keypads

Note: You must be free of static electricity before handling the Keypad. Touch a bare metal surface or wear a grounding strap to discharge yourself.

Note: Do NOT use an outlet that is controlled by a switch.

1. Select a location on a convenient and accessible wall.
2. To open the Keypad housing, insert a flat-head screwdriver into the latch slots at the base of the Keypad and twist the screwdriver one-quarter turn. If present, the battery must be first removed. The front of the Keypad contains static sensitive printed circuit boards. Set the front of the Keypad on the static protected packing material until needed for the mounting steps below.

Open the keypad with a screwdriver
Figure 2

3. Mount at height convenient for use, typically 55 to 60 inches above the floor. A wire must be run from the Keypad to the Power Supply, so choose the location wisely to minimize the difficulty of running the wire. **The Keypad is designed to be mounted on drywall or wood. Mounting on metal studs, or any type of brick, stone, or concrete block will likely reduce the wireless range of the Keypad**.
4. Hold back plate level up to the wall where the Keypad will be mounted and mark area for wires to run through wall.
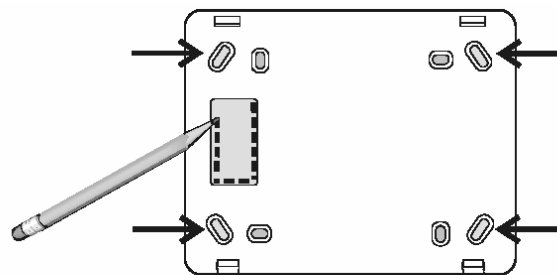
Mark the mounting and wire-entry holes
Figure 3

5. Make hole in wall. Run wires (18 gauge stranded wire) from the mounting location of Keypad to the outlet where Power Supply will be mounted.
6. Mount the Keypad back plate to the wall using #8 drywall screws.
7. Attach the wires to the power terminals of the Keypad. If the wire is color coded, note the attachment color used for the positive terminal of the Keypad. This same color wire should connect to the positive terminal of the Power Supply. The Keypad has a protection circuit in case the wires are connected with the wrong polarity. Later, when the Power Supply is mounted, if the Keypad does not receive power from the Power Supply, switch the polarity of the wire connections on the Power Supply.
8. Snap the front of the Keypad, containing the printed circuit boards onto the back plate, first hooking the top of the Keypad on the top of the back plate, and then rotating the bottom of the Keypad into position. The rotating action should be relatively free and require a minimum of force. If any pressure or difficulty is encountered, do not apply force. Investigate the routing of the wires and the alignment of the plastics and components and then re-try the rotating action. The Keypad will snap at the bottom to lock its mounting.

2.6.2   Wire the Power Supply

Note: You must be free of static electricity before handling the Power Supply. Touch a bare metal surface or wear a grounding strap to discharge yourself.

1. Select an outlet on which to mount the Power Supply. Choose an outlet that is preferably close to the location where the Keypad is mounted.
2. Find the circuit breaker or fuse controlling the outlet to which the Power Supply will be mounted and disconnect power to the outlet by turning the circuit breaker off or removing the fuse.
3. Remove the center screw attaching the outlet cover to the outlet.
4. Attach the wires to the Power Supply terminals, noting the polarity of the wire colors (if any). The Power Supply generates a polarity sensitive +5 volts DC. If the Keypad does not receive power from the Power Supply, switch the polarity of the wire connections on the Power Supply.
5. The Power Supply contains a tab that protrudes above the Power Supply. The Power Supply must be mounted so that the hole in the tab is aligned with the center screw hole of the outlet cover. This may require changing the vertical orientation of the Power Supply in order to find the direction which permits the hole in the tab to align with the center screw hole of the outlet cover.

6. Insert the outlet screw through both the tab and the center screw hole of the outlet cover, and tighten as necessary. The tab and the cover should be snug against the outlet, but not so tight that it causes flexing or stress on either the tab or the outlet cover.
7. Reconnect power to the outlet by turning the circuit breaker on or replacing the fuse.

2.6.3 Install the Battery

NOTE	To avoid risk of shock or fire, install only InGrid IG180 battery.

Install the InGrid IG180 rechargeable battery pack into the Keypad and allow charging for at least 24 hours before using without AC power.

1. Use a coin to gently pry open the battery cover. Lift the battery cover out and to the right to remove.
2. Turn the battery pack so that the connector with the red and black wires is near the jack inside the battery compartment. Match the connector's polarity to the Keypad polarity in the battery compartment (the connector notches fit into the grooves of the jack only one way). Push the battery pack connector into the jack until it clicks into place.
3. Make sure you have a good connection by gently pulling on the battery wires. If the connection is secure, the battery jack will remain in place.
4. Route the battery wires under the provided clip avoid a conflict with the battery cover. Place the battery cover back on the Keypad by inserting the bottom tab into the Keypad back plate and rotating the cover towards the front of the Keypad until it snaps into place. The battery cover does not require much force to reinstall. If resistance is encountered, investigate the cause and reroute any wires as necessary to permit closure with minimal force.

2.6.4 Cover Unused Emergency Keys

Cover any unused emergency keys with plastic key covers. These covers are distributed in separate packages (PN 5-531-234-00), and are not included with the Keypads. Remove the paper backing from the back of the key cover, and press in place.

2.7 Install Grid Extenders

NOTE	Once a Grid Extender obtains power from either its battery or AC power, the Grid Extender should beep once every 30 seconds. This beeping indicates that the Grid Extender does not contain identity information and has not yet been registered into a BHS-i100 system. On initial power up, if the Grid Extender does not begin beeping once every 30 seconds, it will need to be reset to factory default condition.

2.7.1 Installation Guidelines

- The Grid Extender is designed to be mounted to an outlet that is preferably near a point where the telephone line enters the house.
- Do NOT use an outlet that is controlled by a switch.
- **The chosen outlet should not have a metal outlet cover. This may reduce the communications range of the Grid Extender. If necessary, replace any metal outlet cover**

with another outlet cover made of a wood, plastic, glass, or other non-metallic material.
- **Always mount the Grid Extender in the upright vertical position with the telephone connector facing down**.
- The Grid Extender can be connected to a standard analog (loop-start) phone line, with or without digital subscriber line (DSL) service.
- The Grid Extender cannot be used on digital or PBX phone lines, which are designed only for digital type devices that operate anywhere from 5 volts DC and up. The Grid Extender uses an analog modem and does not have a digital converter, adapter, or interface to operate with such systems.
- When connecting the Grid Extender to a standard analog phone line, it is recommended that you install an RJ-31X jack ahead of all phones and other devices on the line for full line seizure. This allows the Grid Extender to take control of the phone line when an alarm occurs, even if the phone is in use or off-hook. It also provides customers with a quick disconnect in case the Grid Extender malfunctions, allowing them to use their phone.
- For UL Listed installations, mount the RJ-31X jack within 5 feet of the Grid Extender.

2.7.2 Install the Battery

NOTE	To avoid risk of shock or fire, install only InGrid IG180 battery.

Install the InGrid IG180 rechargeable battery pack into the Grid Extender and allow charging for at least 24 hours before using with AC power.

1. Press down on the battery compartment cover (use the finger indentation for a better grip) and slide the cover downward to remove.
2. Turn the battery pack so that the connector with the red and black wires is near the jack inside the battery compartment. Match the connector's polarity to the polarity of the jack in the battery compartment (the connector notches fit into the grooves of the jack only one way). Push the battery pack connector into the jack until it clicks into place.
3. Make sure you have a good connection by gently pulling on the battery wires. If the connection is secure, the battery connector will remain in place.
4. Place the battery case cover back on the Grid Extender and slide it upwards until it clicks into place.

2.7.3 Mounting

Note: You must be free of static electricity before handling the Grid Extender. Touch a bare metal surface or wear a grounding strap to discharge yourself.

1. Mount the Grid Extender on an outlet only after the battery has been installed in the Grid Extender and the battery cover is closed.
2. Find the circuit breaker or fuse controlling the outlet to which the Grid Extender will be mounted and disconnect power to the outlet by turning the circuit breaker off or removing the fuse.
3. Remove the center screw attaching the outlet cover to the outlet. Do not remove the outlet cover.
4. Plug the Grid Extender into the lower socket of the outlet as shown in Figure 4 with the Signal Extender telephone connector facing downward.
5. The Grid Extender contains a sliding tab that protrudes above the Grid Extender. If necessary, slide the tab up or

down until the hole in the tab is aligned with the center screw hole of the outlet cover.

6.   Insert the outlet screw through both the tab and the center screw hole of the outlet cover as shown in Figure 4, and tighten as necessary. The tab and the cover should be snug against the outlet, but not so tight that it causes flexing or stress on either the tab or the outlet cover.

7.   Reconnect power to the outlet by turning the circuit breaker on or replacing the fuse.

Figure 4

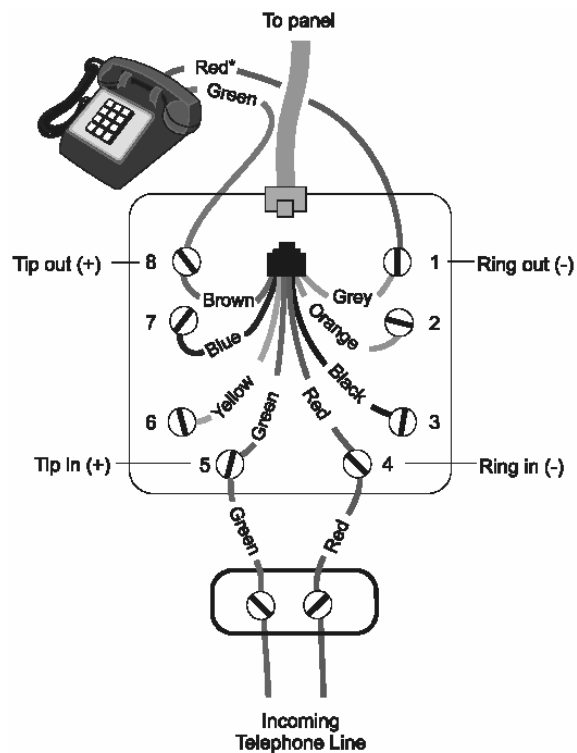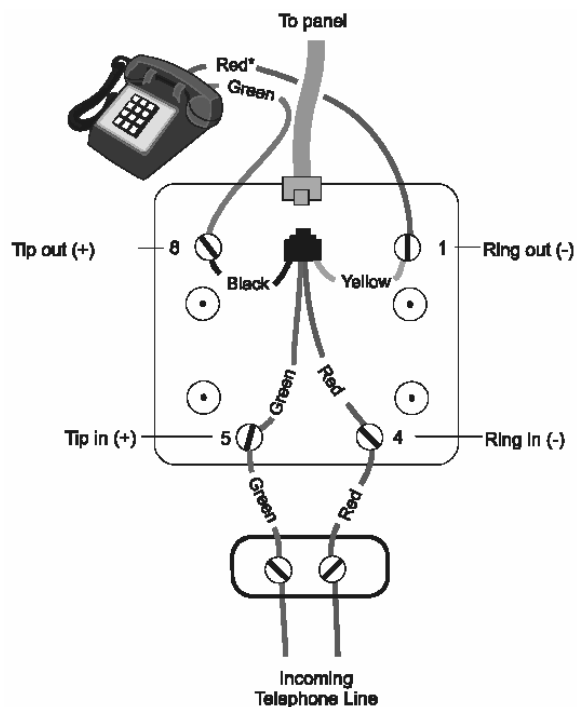## 2.8   Install the RJ31X / RJ38X

One Grid Extender is designated at the Gateway Grid Extender and must be connected to the telephone line using a RJ31X or RJ38X jack. To install the RJ31X or RJ38X jack, do the following:

2.8.1   Wire The RJ31X Jack As Shown:

Wire the RJ31X jack
Figure 5

2.8.2   Wire The RJ38X Jack As Shown:

Wire the RJ38X jack
Figure 6

NOTE	The colors of house phone wires vary. If the colors do not match the diagrams above, connect the wire that was connected to Tip Out (+) to Terminal 8 (the brown wire on the RJ31X and the black wire on the RJ38X), and connect the wire that was connected to Ring Out (-) to Terminal 1 (the grey wire on the RJ31X or the yellow wire on the RJ38X).

During normal operation, the telco interface's seize relay clicks a number of times before a call is placed. The relay rapidly switches state to disconnect any calls that are in progress.

2.9   Register Grid Extenders

The InGrid grid network is formed in the customer's home by registering the Grid Extenders into a single network. The process begins by setting a Keypad as the first node (or Master) of the network, and then adding more nodes (Slaves) one at a time.

The Registration process requires use of the Programmer. The operation of the various Programmer menus is described in section 3.

Note: This section describes how to create and configure a new installation. See chapter 3 for instructions on how to perform configuration maintenance on an existing system.

2.9.1   Cross Registration

Cross Registration is an undesired event that can occur when a device from one customer's grid network is mistakenly registered into another customer's grid network. The greatest risk of Cross Registration occurs when two Installers are simultaneously installing systems in neighboring homes or apartments.

The BHS-i100 minimizes the probability of Cross Registration through the following techniques:

- For each device that must be registered, the Installer must specifically command the registration event. Each time that registration (or learning) is commanded, there is a time window of no more than 60 seconds during which registration of the new device must take place or the time windows closes.
- The Programmer contains wireless receivers, and is carried by the Installer to the device about to be registered. Because the Programmer is physically close to the device while it is registering, the Programmer receives a very strong signal relative to the other Grid Extenders. This strong message is compared to the message received by the other Grid Extenders during qualification. It is very unlikely a neighbor device at a greater distance can generate the same strong signal in the Programmer.
- InGrid devices such as Grid Extenders, Sensors, and Auxiliary Sirens have special registration messages that are different than normal status or fault messages. These registration messages must be specifically commanded. So a status message from a neighbor's system can never mistakenly cause a Cross Registration. In addition, each customer's grid network uses unique encryption keys that prevent devices in one network from be able to correctly receive messages from devices in a neighbor's network.
- InGrid devices may only register once, and only to a single system. If a device is already registered, and the Installer wants to register that device again, the device must be

specifically reset back to factory default thereby erasing its current configuration.
- InGrid Sensors support bi-directional messages. The return path from the Grid Extenders to the InGrid Sensors is intentionally limited to minimize the probability of communications with systems outside of the customer's home or small office.
- Each registration event requires qualification/confirmation with audio feedback.
- During registration, if messages from two different devices are received, neither device is registered and the Installer must try again. Typically, on the second attempt only the desired device will send a registration message.

2.9.2   Set First Keypad to Master

Prior to setting a Keypad to Master, the Keypad should be beeping approximately once every 30 seconds to indicate that it contains a factory default configuration. If the Keypad is not beeping every 30 seconds, then the Keypad already contains an identity and configuration. *In this case, refer to section 2.9.6 in order to restore the Keypad to factory default settings.*

In general, a centrally located Keypad should be selected to be the Master during configuration. To set a Keypad to Master:

1. Press and hold "8","9".. The Keypad will beep and its LED will begin to blink.
2. The Keypad is now Master and is ready to register a Programmer for 60 seconds. If the Programmer is not registered within 60 seconds, repeat step 1 after power cycling the Master keypad.

2.9.3   Learn the Programmer

To register the Programmer, the Master Keypad must be in registration mode. For an initial installation, the Master Keypad is in registration mode after the steps above in section 2.9.2. If the Programmer is to be registered into an existing system, follow the steps in section 3.1.3, and proceed to section 2.9.4. Otherwise, follow the steps presented here:

1. Power up the Programmer by pressing any key. The Programmer will display:

```
Welcome to BHS-i100
Enter Access Code
>
```

2. The Installer is prompted for a login access code. For new systems the default access code is "1 2 3 4 5"; for a previously configured system, the access code is the Comm 1 Account Number.
3. After entering the correct access code, the Programmer will register to the Master Keypad. Upon successful registration, the Programmer and the Master Keypad will each chirp, and the Programmer will display:

```
Press 0 on keypad
to test connection
(Programmer beeps)
1=ACCEPT    2=REJECT
```

4. Pressing the "1" key confirms Programmer registration with the master and causes the Home Menu to be displayed.

Pressing "2" deregisters the Programmer and causes the initial registration screen to be displayed.

2.9.4   Learn Additional Keypads

Prior to registering another Keypad to the system, the new Keypad should be beeping approximately once every 30 seconds to indicate that it contains a factory default configuration. If the Keypad is not beeping every 30 seconds, then the Keypad already contains an identity and configuration. In that case, follow the steps in section 2.9.6 in order to return the GE to factory default configuration.

For each Keypad to be added to the system:

1. Carry the Programmer to the next Keypad.
2. On the Programmer, navigate to "Learn Devices", then "Learn GE". Registration will be enabled for 60 seconds only. The Programmer will display:

```
RSSI: xxxx (Ok|Not Ok)
Press registration
key/button combination
on GE   ESC to exit
```

The RSSI is the Received Signal Strength Indication showing how strongly the Programmer is receiving the wireless signal from the Master Keypad. It is a reasonable estimate of the signal that the new Keypad should also receive.

3. Press and hold"5","6".. Upon successful registration, the Programmer and the Keypad will each chirp. The Programmer will display:

```
Press 0 on keypad
to test connection
(Programmer beeps)
1=ACCEPT   2=REJECT
```

4. The Programmer will return to the Learn Devices menu.

2.9.5   Learn Signal Extender(s)

Prior to registering a Grid Extender to the system, the Grid Extender should be beeping approximately once every 30 seconds to indicate that it contains a factory default configuration. If the Grid Extender is not beeping every 30 seconds, then the Grid Extender already contains an identity and configuration. If the installer wants to register a Grid Extender that already contains an identity, it will be necessary to reset the Grid Extender to factory default values as described in section 2.9.6.

For each Grid Extender to be added to the system:

1. Carry the Programmer to the Grid Extender.
2. On the Programmer, navigate to "Learn Devices", then "Learn GE". Registration will be enabled for 60 seconds only. The Programmer will display:

```
RSSI: xxxx (Ok|Not Ok)
Press registration
key/button combination
on GE   ESC to exit
```

The RSSI is the Received Signal Strength Indication showing how strongly the Programmer is receiving the wireless signal from the Master Keypad. It is a reasonable estimate of the signal that the new Keypad should also receive.

3. On the Signal Extender, press and hold the button on the front until the LED flashes. Upon successful registration, the Programmer and the Grid Extender will each chirp. The Programmer will display:

```
Press button on GE
to test connection
(Programmer beeps)
1=ACCEPT   2=REJECT
```

4. The Programmer will return to the Learn Devices menu.

2.9.6   Resetting A GE To Factory Default

In some instances, a GE may contain an identity and configuration that prevents the installer from registering a Keypad or Grid Extender. This will require the device to be restored to factory default settings before continuing with registration.

To restore a GE to factory default settings:

1. Disconnect AC power from the outlet which the GE is plugged into.
2. Remove the battery from the GE.
3. Wait 10 seconds to allow internal power to discharge.
4. Reinstall the battery and within 10 seconds press and hold the registration button (for Grid Extenders) or press and hold "5", "6".. In either case, the final button/key must be held until the LED begins to flash and an audible beep is heard (about 10 seconds).
5. Remove the battery. Wait 10 seconds. Re-install the battery.
6. Reinstall the GE and restore AC power (following the instructions in section 2.7).
7. The GE should now beep approximately once every 30 seconds to indicate that it contains a factory default configuration and is ready to register.

2.9.7   Registration Troubleshooting

Problem:	The Programmer is registered into a neighboring system.
Symptom:	Local Keypad doesn't chirp when attempting to register the Programmer, or the Programmer fails to beep when pressing the "0" key on the Keypad (per step 3. in section 2.9.3 above).
Recovery:	If this is an initial installation, repeat the "Set First Keypad To Master" procedure in section 2.9.2 and "Learn The Programmer" procedure in section 2.9.3. If this is an existing installation, following the procedure in section 3.1.3.

Problem:	A GE is registered into a neighboring system.
Symptom:	Local GE doesn't chirp when attempting to register it, and Programmer doesn't indicate a successful registration. Or, "GE Finder" fails.
Recovery:	Follow the "Resetting a GE To Factory Default" procedure in section 2.9.6 and then repeat registration

Problem: A neighboring GE is registered into the local
            system.
Symptom: Programmer shows acceptance screen but the
            GE is still blinking or GE Finder fails.
Recovery: Delete GE using the Programmer. If necessary,
            restart registration procedure beginning with "Set
            First Keypad To Master" procedure in section
            2.9.2 (initial installation).

2.10 Install/Learn InGrid Sensors

In order to install the InGrid Sensors, Grid Extenders must be
installed and the system must be operational. In addition, the
Programmer must be registered and operational. Sensors are
RF qualified during the registration process using the Grid
Extender grid network in the customer's home.

2.10.1 Install Mounting Clip

There are three (3) parts to an InGrid Sensor: (i) the clip that is
screwed to the window frame or door frame, (ii) the Sensor itself,
and (iii) the magnet that is attached to the window or door.

Ingrid sensors are most often registered to operate using
magnets to change the state of the zone. However, it is possible
to configure a sensor to operate with an external switch that is
hardwired to the Ingrid sensor.

In this first step, install only the clip itself in the desired location.
The clip has markings that indicate where the magnet must be
located.

2.10.2 Install/Learn The Sensor

1. Using the Programmer, navigate to "Learn Devices", then
    "Learn InGrid Sensor". Registration will be enabled for 60
    seconds only. The Programmer will display:

```
Insert sensor
into clip
```

2. Within 60 seconds, while holding the Programmer near the
    clip (within 1 foot is preferred), snap the InGrid Sensor into
    the clip. The Sensor will automatically attempt to register. If
    the registration process is successful, the Programmer will
    triple beep and display:

```
Fault sensor
to complete
registration
```

3. If the registration process fails, the Programmer will leave
    registration mode automatically after displaying a
    registration failure message. If a system detects two
    registration bursts during the Sensor registration mode it
    will not register either Sensor and the Programmer will
    leave registration mode automatically after displaying an
    error message.
4. The registration must be confirmed by faulting the Sensor.
    Faulting the sensor using a magnet will place the sensor in
    Magnet mode, faulting the sensor using and external switch
    will cause the sensor to be in External mode. . The
    Programmer will then display either:

```
Sensor (Magnet | External)
REGISTERED
Press ENTER
to continue
```

or

```
Sensor NOT REGISTERED
Press ENTER
 to continue
```

5. If the Sensor fails to qualify, the Programmer will return to
    the "Learn Devices" menu.
6. If the Sensor successfully qualifies, the Programmer will
    display:

```
Assign Sensor to
Zone #
> <default>
```

7. The installer may enter a new number, or press **[Enter]** to
    select the default zone value. If the installer enters a zone
    number which is currently in use, the Programmer will
    display:

```
OK to overwrite
zone 12?
1=YES       2=NO
```

8. After the zone number has been selected, the Programmer
    will display a list of zone types such as:

```
Zone #
Type
?Entry/Exit
```

9. The process may be repeated until all Sensors are
    registered.
10. After all Sensors are qualified, use the Programmer's Zone
    Finder to ensure that all Sensors are correctly registered.

2.10.3 Troubleshooting Sensor Registration

Problem: A Sensor is registered into a neighboring system
Symptom: Local Programmer doesn't "triple beep" or show
            the request for qualification step.
Recovery: Reset the Sensor to factory default (section
            2.10.4) and repeat registration.

Problem: Sensor from a neighbor's home is registered into
            the local system.
Symptom: During the registration process, a Sensor was
            registered into a particular zone. During a Zone
            Finder test, no local Sensor matches the zone.
Recovery: On the Programmer, navigate to "Delete
            Zone/Sensor" and delete the zone containing the
            unknown Sensor.

Problem: A Sensor will not register.

Symptom: During the registration process, a Sensor is inserted but the Programmer does not recognize the Sensor. No registration message appears to be transmitted. Sensor may be registered to another system.

Recovery: Reset the Sensor to factory default settings. See section 2.10.4.

2.10.4 Resetting A Sensor To Factory Default

In some instances, an InGrid Sensor may contain an identity and configuration that prevents the installer from registering a Sensor. This will require the device to be restored to factory default settings before continuing with registration.

To restore a Sensor to the factory default settings:

1. Remove the Sensor from the clip.
2. The reset contacts as shown in the picture below. Figure 7
3. Using a small flat blade screwdriver, short the reset contacts to each other for several seconds.
4. The Sensor should now be restored to factory default settings and be ready for registration.

Reset Contacts

Figure 7

2.11 Install/Learn Auxiliary Sirens

Occasionally, one or more Auxiliary Sirens are needed. This may occur if the layout of the home prevents the Keypad sirens from adequately reaching all areas of the home or if residents suffer from hearing loss. If an Auxiliary Siren is necessary, it should be mounted in a location that will enable all occupants of the household to hear the siren.

2.11.1 Install The Auxiliary Siren

To mount the Auxiliary Siren:

1. Remove the back plate from the Auxiliary Siren
2. Mount the back plate to the wall using #8 drywall screws.
3. Install the CR123 batteries.
4. Learn the Auxiliary Siren.
5. Mount the siren to the back plate.
6. Test the Auxiliary Siren

2.11.2 Learn The Auxiliary Siren

1. Using the Programmer, navigate to "Learn Devices", then "Learn Auxiliary Siren". Registration will be enabled for 60 seconds only. The Programmer will display:

```
Press button
On Ext Siren
```

2. While holding the Programmer near the Auxiliary Siren, press the button on the Auxiliary Siren. The Auxiliary Siren will automatically register and both the Programmer and the Keypads will triple beep. If successful, the Programmer will display:

```
Mount Siren on back
plate to qualify
the installation
```

3. If the Auxiliary Siren fails to register within 60 seconds, the Programmer will leave registration mode automatically. If a system detects two registration bursts during the Auxiliary Siren registration mode it will not register either Auxiliary Siren and the Programmer will leave registration mode automatically.
4. The registration must be confirmed by [doing something – TBD on Siren hardware design] the Auxiliary Siren. The Programmer will then display either:

```
Siren QUALIFIED
Press any key to continue
```

or

```
Siren NOT QUALIFIED
Press any key to continue
```

5. If the Auxiliary Siren fails to qualify, the Programmer will return to the "Learn Devices" menu.
6. If the Auxiliary Siren successfully qualifies, the Programmer will display:

```
Enter Siren Number:
> <default>
```

7. The installer may enter a new number, or press **[Enter]** to select the default number. If the installer enters a siren

number which is currently in use, the Programmer will display:

```
OK to overwrite
Siren 1?
1=YES      2=NO
```

8. After the siren number has been selected, the Programmer will display a list of configuration parameters such as:

```
Exit Tone Enable:
>YES
```

9. The process may be repeated until all Auxiliary Sirens are registered.

2.12 Install/Learn Ademco Transmitters

Each BHS-i100 system supports up to 59 total sensors, which may include Ademco 5800 series transmitters of the following types:

*   5808LST Smoke Detector
*   5800 Motion Sensor
*   5853 Glassbreak Detector

In order to install the Ademco Transmitters, Grid Extenders must be installed and the system should be operational. In addition, the Programmer must be registered and operational. Ademco Transmitters are RF qualified during the registration process using the Grid Extender grid network in the customer's home.

NOTE	You must remove the cover from the Ademco 5800 Motion Sensor before attempting to register it. The cover can be replaced after the sensor is successfully registered.

2.12.1 Install The Transmitter

Ademco Transmitters have permanent serial numbers programmed at the factory. Therefore, the entire Transmitter may be installed before registration. There are no special registration messages or identity information exchanged. Because unique messages are not used, the probability of Cross Registration is greater. See section 2.9.1 for information on Cross Registration and be especially alert for the audio feedback.

2.12.2 Learn The Transmitter

1. Using the Programmer, navigate to "Learn Devices", then select one of the following, depending on the type of sensor you are attempting to register:
    *   "Learn Ademco Sensor",
    *   "Learn Glass Sensor",
    *   "Learn Motion Sensor", or
    *   "Learn Fire Sensor"

    Registration will be enabled for 60 seconds only. The Programmer will display:

```
Please Fault Sensor
```

(Note: the actual text displayed will differ slightly depending on the type of sensor you are attempting to register.)

2. While holding the Programmer near the Ademco Transmitter (within 1 foot is preferred), fault the sensor. (Note: The 5808LST Smoke Detector can be faulted by pressing the recessed test button on the front of the unit. The 5800 Motion Sensor can be faulted by moving your hand in front of the sensor. The 5853 Glassbreak Detector can be faulted by tapping it with a pen.) The sensor will send a fault transmission and the Programmer will triple beep. If successful, the Programmer will display:

```
Sensor detected:
Serial Number:
13444322
1=ACCEPT 2=REJECT
```

3. If the Transmitter fails to transmit within 60 seconds, the Programmer will display an error message and leave registration mode automatically. If a system detects two different Ademco Transmitter bursts during the Transmitter registration mode it will not register any Transmitter and the Programmer will display an error message and leave registration mode automatically.
4. The registration must be confirmed by faulting the sensor. The Programmer will then display either:

```
Sensor (Magnet)
REGISTERED
Press ENTER
to continue
```

or

```
Sensor
NOT REGISTERED
Press ENTER
to continue
```

5. If the sensor fails to qualify, the Programmer will return to the "Learn Devices" menu.
6. If the Sensor successfully qualifies, the Programmer will display:

```
Assign Sensor to
Zone #
> <default>
```

7. The installer may enter a new number, or press **[Enter]** to select the default zone value. If the installer enters a zone number which is currently in use, the Programmer will display:

```
OK to overwrite
zone 12?
1=YES      2=NO
```

8. After the zone number has been selected, the Programmer will display a list of zone types such as:

```
Zone #
Type
? INSTANT
```

9. The process may be repeated until all Sensors are registered.
10. Use the Programmer's Zone Finder to ensure that all sensors are correctly registered.

2.13 Supervision

Supervised Sensors and Transmitters send check-in signals to the receiver at 70-90 minute intervals.

If at least one check-in message is not received from each transmitter within the specified supervision period, the icon Keypad will display "TROUBLE" along with the associated zone number.

2.14 Battery Life Indication

Batteries in InGrid Sensors typically last 9 to 10 years, and batteries in Ademco Transmitters may last from 2 to 4 years, depending on the environment, usage, and the specific wireless device being used. Factors such as humidity, extreme temperatures, as well as large temperature variations, may all reduce the actual battery life in a given installation.
The wireless system can identify a true low-battery situation, thus allowing the dealer or user time to arrange a change of battery and maintain protection for that given point within the system.

A low battery condition is noted when the display shows "LOW BAT".

InGrid Sensors contain long-life but non-replaceable batteries, and no battery installation is required. At the end of their life, the complete unit must be replaced and registered by the Programmer. Do not install batteries in Ademco Transmitters until you are ready to register them during system programming.

2.15 Learn Key Fob

1. Using the Programmer, navigate to "Learn Devices", then "Learn Key Fob". Registration will be enabled for 60 seconds only. The Programmer will display:

```
Press any Key Fob
Button 3 times
```

2. While holding the Keychain Remote near the Programmer (within 1 foot is preferred), press any Keychain Remote button 3 times. The Programmer and the Keypads will triple beep. If successful, the Programmer will display:

```
Key Fob detected
Press any Key Fob
Button 3 times
To qualify
```

3. If the Keychain Remote fails to transmit within 60 seconds, the Programmer will leave registration mode automatically. If a system detects two different Keychain Remote bursts during the Keychain Remote registration mode it will not register either Keychain Remote and the Programmer will leave registration mode automatically.
4. The registration must be confirmed by pressing any Keychain Remote button 3 times. The Programmer will then display either:

```
Key Fob QUALIFIED
Press any key to continue
```

or

```
Key Fob NOT QUALIFIED
Press any key to continue
```

5. If the Keychain Remote fails to qualify, the Programmer will return to the "Learn Devices" menu.
6. If the Keychain Remote successfully qualifies, the Programmer will display:

```
Enter User Number:
> <default>
```

7. The installer may enter a new number, or press **[Enter]** to select the default user number value. **Note that the Keychain Remote will only become active if the selected user number is enabled. A Keychain Remote cannot be added to users 9-13.** If the installer enters a user number which is currently in use, the Programmer will display:

```
OK to overwrite
User 2?
1=YES        2=NO
```

8. After the user number has been selected, the Programmer will display a list of button definitions such as:

```
Enter Button 1 type:
> POLICE
```

9. The process may be repeated until all Keychain Remotes are registered.

3 Programming

3.1 Getting Started

The BHS-i100 is programmed using the InGrid model BP420 wireless Programmer, shown below. The programming is menu-based.

3.1.1 Power Up The Programmer

The Programmer is a standalone wireless device that does need to be physically connected to the system in the customer's home. The Programmer is powered by an internal battery. The battery requires periodic charging from its AC power supply. The Programmer will automatically enter a sleep mode to conserve battery power whenever no key is pressed in a 15 minutes interval. To apply power to the Programmer, press any key.

3.1.2 Registration Overview

The BHS-i100 is a grid network of devices installed in the customer's home or small office. For the security and privacy of the customer, the wireless communications between the devices is protected with encryption keys that are unique to each customer's grid network. The encryption keys are calculated based upon the Registration Access Code. For a system configured with factory default values, the Registration Access Code is "1 2 3 4 5". After the Comm 1 Account ID has been programmed into the system, the Comm 1 Account ID is assigned to the Registration Access Code. If the Registration Access Code is not known, the system will need to be reset to factory default values.

In order to access the configuration of the BHS-i100 installed in the customer's home or small office, the Programmer must temporarily "join" the grid network so that the Programmer can receive and transmit the encrypted wireless messages between the devices.

Note: The following procedure allows you to register a Programmer to an existing system. Follow the directions in section 2.9 in order to create and configure a new system.

3.1.3 Register the Programmer

If the Programmer has not already been registered into the system, register the Programmer:
1. 1 Press and hold "1", "9" on any keypad until the LED starts flashing..
2. The system is now ready to register a Programmer.
3. Power up the Programmer by pressing any key. The Programmer will display:

```
Welcome to BHS-i100
Enter Access Code
>
```

10. The Installer is prompted for a login access code. For new systems the default access code is "1 2 3 4 5"; for a

previously configured system, the access code is the Alarm Report Account ID.
11. After the access code is entered followed by the "ENTER" key, the Programmer displays the following:

```
Waiting for
Registration
Press ESC to restart
```

12. After entering the correct access code, the Programmer will register to the Master Keypad. Upon successful registration, the Programmer and the Master Keypad will chirp. The Programmer will then display the Home Menu.

3.1.4 Home Menu

The Home Menu now appears. The Programmer displays four menu items at a time, as shown in the illustration below and to the left. The entire Home Menu is shown to the right. Use the **[Λ]** and **[V]** keys to scroll through the menu items.

```
1 Set Defaults
2 Learn Devices
3 Standard Menu
4 Advanced Menu
```

Home Menu, as it first appears on display

```
1 Set Defaults
2 Learn Devices
3 Standard Menu
4 Advanced Menu
5 Test Menu
6 Replace Hardware
7 Upload Config
8 Browse Events
9 Diagnostics
10 Prog Batt Stat
11 Set Poweroff Time
12 Set Backlt Time
13 Exit
```

Entire Home Menu

The Home Menu allows you to choose between Standard and Advanced Programming, and a variety of diagnostic tools. Press the **[V]** key to view the lower items on the list.

There are two ways to select most menu items. You may scroll to the item you want, using the **[Λ]** and **[V]** keys, and then press the **[Enter]** key to select it. You may also select an item by entering its menu number.

3.1.5 Menu Programming Terminology

Because menu programming is somewhat different from command location programming, the terminology used to describe it is also slightly different. In this manual, the following terms are used:

- **Topic**. A programmable feature, like zone type or the global exit delay. In command location programming, a topic would occupy a single command location.
- **Option**. A way in which a topic can be programmed. An option could be the number of seconds a siren sounds, the type of communicator needed, or a customer's name. In command location programming, an option would be the data programmed at a particular location.
- **Path.** The series of menu choices needed to navigate to a specific place in the programming tree. In command location programming, the path would be the command location number.
- **Menu item.** Anything you can choose from the menu, but cannot directly program. For example, you can choose the Standard Menu from the Home Menu and view the subsequent menu items within that branch of the programming tree, but there is no programmable value that you can assign to "Standard Menu." There is no equivalent term in command location programming.

3.2 Using The Programmer

3.2.1 Navigational And Data-Entry Modes

The Programmer has two operating modes: the navigational mode and the data-entry mode. In the navigational mode, you can move from topic to the next, but you cannot enter data. The data-entry mode allows you to change the system's programmed values and then advance to the next topic.

When you begin programming, the Programmer is in the navigational mode. Once you have moved to an option that you wish to program, you can switch to the data-entry mode by pressing the **[Enter]** key. In the data-entry mode, a '?' character or a flashing cursor is shown on the screen to indicate that user input is expected.

There are two ways to move from the data-entry mode back to the navigational mode. If you want to write a programming change to memory and return to the navigational mode, press the **[Enter]** key. The Programmer displays the next menu item (or, if there are none, returns to the previous menu.) If you want to abort a programming change and return to the navigational mode, press the **[Escape]** key instead. The Programmer displays the current menu item.

As you become an experienced user of the Programmer, you will probably be able to switch between these modes automatically. However, it is important to point out the existence of these two modes, because the functions of some of the Programmer's keys change, depending upon which mode the Programmer is in. This is discussed in more detail in the following two sections.

3.2.2 Key Functions: Navigational Mode

The table below describes how each of the Programmer's keys functions in the navigational mode. The keys that are not shown have no function in the navigational mode.

Key	Function
6 MNO@	Press to select a menu item with the same number.

Key	Function
6 MNO@	The special characters are not used in the navigational mode.
ENTER	When a menu item is displayed, pressing the **[Enter]** key selects it. When a programmable option is displayed, pressing the **[Enter]** key takes you to data-entry mode.
SHIFT	Not used in the navigational mode.
BACK	Not used in the navigational mode.
ESC	Press once to move back one level. Press repeatedly to return to the Home Menu. The **[Esc]** key does not take you out of installer programming.
↑ ↓	Press once to scroll the display up or down one line. Press and hold to scroll through the display.
HOME	Press once to return to the Home menu. Press again to write programming changes to memory immediately.
<F1 F2>	The F1 and F2 keys can be used to page up and down (respectively) through menu screens.

3.2.3 Key Functions: Data-Entry Mode

The table below describes how each of the Programmer's keys functions in the data-entry mode. To go into the data-entry mode, press the **[Enter]** key. The keys that are not shown have no function in the data entry mode.

Key	Function
6 MNO@	Press to enter a number to be programmed.
6 MNO@	Press once, then use the **[/\]** and **[\/]** keys to scroll to the desired alphanumeric character. Do not pause for more than one second between keystrokes. For example, to enter the letter "N," press the [6] key, then press the **[\/]** key twice.
ENTER	Press to write changes to memory, return to navigation mode, and advance to the next topic, if applicable.
SHIFT	Press to toggle between upper- and lower-case letters. (The first character of all labels or name fields is automatically capitalized.)

BACK	Press once to erase the last character in the display.
ESC	Press once to cancel a programming change before it is written to memory. The display reverts to the previously programmed information and the Programmer returns to navigational mode.
↑ ↓	Press to scroll through lists of programmable options (such as zone type).
HOME	Press once to return to the Home menu without saving any changes.

3.2.4   Entering Data

When you have reached the programmable option you wish to configure, press the **[Enter]** key to switch from the navigational mode to the data-entry mode. While you are in the data-entry mode, the display's cursor flashes.

To input data, you must do one of four things: 1) enter a number; 2) enter text; 3) select the option you want from a list; or 4) toggle a yes/no field. The method for doing each of these things is described below.

How to enter a number. When the Programmer requires you to enter a number, you see a ">" symbol followed by the currently-programmed value. The example below shows that the currently programmed number of dial attempts for Alarm Receiver is five.

```
Alarm Receiver
Dial Attempts
> 5
```

To change the value, press the **[Enter]** key to switch to the data-entry mode:

```
Alarm Receiver
Dial Attempts
> 5█
```

Next, press the **[Back]** key to erase the old value. Input the new value. Once you have entered the maximum allowable number of characters, the cursor no longer accepts input. Press the **[Enter]** key to write the data to memory, advance to the next topic, and to return to the navigational mode.

How to enter text. When the Programmer requires you to enter a text field, you see a ">" symbol, like the example below. This example shows that the account has not been give a name.

```
Account Name
> SIA Receiver
```

To change the value, press the **[Enter]** key to switch to the data-entry mode:

```
Account Name
> SIA Receiver█
```

Next, press the **[Back]** key to erase the old value. Input the new value. Input the desired text using any combination of letters, numbers and special characters. Once you have entered the maximum allowable number of digits, the cursor continues to flash, but no longer accepts input. When you have completed the entry, press the **[Enter]** key to write the data to memory and return to navigational mode. The Programmer beeps to indicate the programming change was made.

To enter a particular letter, press the corresponding numeric key once, then use the **[/\]** or **[\/]** keys to scroll to the desired alphanumeric character. Do not pause for more than one second between keystrokes. For example, to enter the letter "N," press the [6] key, then press the **[\/]** key twice.

How to specify "yes" or "no." When the Programmer requires you to answer a question with a "yes" or a "no", the Programmer displays a ">" symbol followed by the currently programmed value. The display shows how the system is currently programmed. In the example below, the system's telephone line is not monitored, because the Line Cut enable topic is disabled.

```
Line Cut
>No
```

To toggle the option, press the **[Enter]** key, which causes the ">" character to be replaced with a "?" character:

```
Line Cut
?No
```

Now use the **[/\]** or **[\/]** keys to select the desired value, then press the **[Enter]** key to write it to memory and to return to navigational mode.

How to select from a list of options. When the Programmer requires you to select one option from a specified list, you see a ">" symbol and the currently-programmed option. In the data-entry mode, the ">" character is replaced by the "?" character. The example below shows that zone 1 is currently unconfigured.

```
Zone 1
Zone Type
>Unconfigured
```

Press the **[/\]** or **[\/]** keys to scroll through the list of options. When the desired option appears, press **[Enter]** to write it to memory and to return to navigational mode. The programmer beeps to indicate the programming change was made.

3.2.5   Entry Errors

If you attempt to enter an invalid programming value (for example, an entry delay that exceeds the allowable range), the Programmer sounds an error tone to alert you and displays an error message.

In this case the existing programmed value is not changed. Press the ESC or ENTER keys to return to the previous screen.
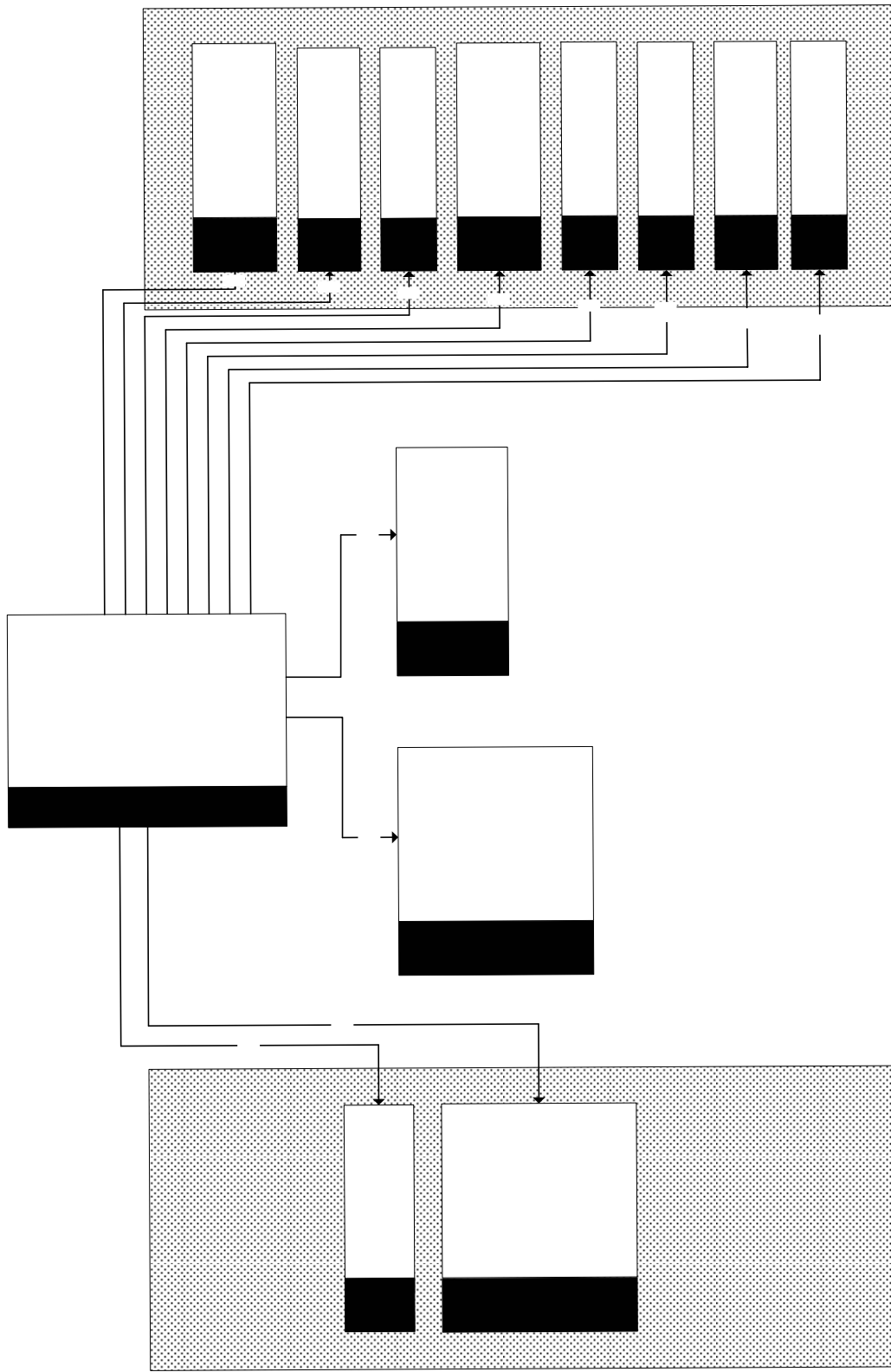
1   Installer Test
2   Zone Finder

3.3   Organization Of Menu Programming

3.3.1   Programming Tree

The illustration on the previous pages shows how the programming information is organized at the Home Menu level.

3.3.2   Logical Programming Groups

The BHS-i100 programming topics are grouped in a way that reflects the underlying organization of the system's firmware. The main groups of programming topics are described below.

System topics. System topics are those global settings that affect more than one system device or more than one type of system event. An example of a system topic is Answering Machine Bypass.

Device topics. Device topics are used to configure the system's devices. The system's exit delays are Keypad device topics.

User topics. User topics configure the system's users and related parameters.

Comm (Communicator) topics. Communicator topics configure the system's communicators and control reporting. The communicator topics include, for example, dial attempts, the communicator's telephone number, and which reports are sent to a particular Communicator.

3.3.3   Standard versus Advanced Programming

The BHS-i100's programming is divided into two groups: Standard and Advanced Programming.

The Standard Menu covers all of the items frequently programmed during a typical installation. Zone configurations, communicator telephone numbers, and the system's user codes can all be specified in the Standard Menu.

Advanced Programming includes almost all of the programming options found in the Standard Menu, as well as a variety of less commonly modified system settings. The Home Menu Tree shows which programming options are included in the Standard Programming Mode and which are reserved for the Advanced Programming Mode.

Many options can be programmed in either Standard or Advanced Programming. Selecting the Standard Menu should reduce the total time you spend programming the system.

To illustrate the difference between Standard and Advanced Programming, the following programming examples show how the installer would change the master user code using both Standard and Advanced Programming. (The master user is user number 13, or as it is written on the Programmer's display, user 13.)

Standard Programming Example. To change the master user code to 159 in Standard Programming, do the following:

1.   Select Standard Menu from the Home Menu (Option 3).
4.   Select Option 5: User Codes.
5.   Use the arrow keys to move the cursor to the Master User entry (User 12). Press the **[Enter].**
6.   Use the **[V]** arrow to scroll to User Access Code.
7.   Press the **[Enter]** key to switch to the data-entry mode.

8.   Use the **[Back]** key to erase the current value, if present.
9.   Input 159.
10. Press the **[Enter]** key to write the change to memory and return to the navigational mode.
11. Press the **[Home]** key to return to the Home Menu.

Advanced Programming Example. To change the master user code to 159 in Advanced Programming, do the following:

1.   Select Advanced Menu from the Home Menu (Option 4).
12. Select User Access Menu (Option 4).
13. Use the arrow keys to move the cursor to the Master User entry (User 12). Press the **[Enter].**
14. Select View/Edit User (Option 1).
15. Use the **[V]** arrow key to scroll to User Access Code.
16. Press the **[Enter]** key to switch to the data-entry mode.
17. Use the **[Back]** key to erase the current value, if present.
18. Input 159.
19. Press the **[Enter]** key to write the change to Memory and return to the navigational mode.
20. Press the **[Home]** key to return to the Home Menu.

3.4   Numbering Conventions

This section defines and explains the numbering conventions used in the BHS-I100.

System Devices. The first Keypad is always known as Device 1. The remaining system devices, such as the Keypads and Signal Extenders, are numbered in the order in which they were learned by the system. Device numbers are simply integers: Device 1, Device 2, Device 3, etc.

The following user numbers are pre-defined

User Number	User Name	User Function
9	Host Check-In	Allows the user the initiate a call to the Imagine Downloader software. The code is randomly generated and changes after each use. The new code must be obtained from Customer Care.
10	Special Bypass	Restricts user's access to select zones.
11	Duress	Sends a silent panic alarm to the central station.
12	Master	Gives the user access to all of the system's user-controlled features.

Below is a list of factory default zones:

Zone Number	Zone Type
60	Keypad Tamper
61	Line Cut
62	Fire Button
63	Medical Button
64	Police Button

3.5   Programming Options

3.5.1   Home Menu Option 1: Set Defaults

The first option of the Home Menu is Set Defaults. This option allows you to revert the BHS-i100's programming to either the Brinks defaults or SIA (SIA CP-01-2000 Standard) compliance defaults. (Factory default is SIA Compliant mode.)

When you select Set Defaults, you will be asked to confirm the request by pressing the **[1]** key or cancel it by pressing the **[2]** key. You will then be asked to select the Compliance Mode. Press **[Enter],** then press the **[Λ]** and **[V]** keys to show Brinks or SIA. Press **[Enter]** again to make your selection. The defaults for each programmable topic are listed in the Standard and Advanced Programming portions of this section.

Refer to Appendix D for more information on the SIA false alarm reduction settings.

3.5.2   Home Menu Option 2: Learn Devices

The second option of the Home Menu is Learn Devices. This option allows you to Add, Edit or Delete any device in the BHS-i100's system.

Menu Item 1: Learn GE

Information sought:	Do you wish to learn (register) one or more Grid Extenders (Keypads or Signal Extenders) into the system?
Default Value	No GEs learned.
To Configure:	Select the Learn GE menu option from the **Home Menu	Learn Devices** Menu. Registration will be enabled for only 60 seconds. Press and hold "5", "6", on the new keypad, or press and hold the Registration button on the new Signal Extender. See section 2.9.4 and 2.9.5 for detailed steps. Upon successful registration, the Programmer and the Keypad will each chirp.
	The registration must be confirmed on the Keypad or Signal Extender.
To Skip:	If you do not wish to learn a Grid Extender, press the **[V]** key to scroll to the next menu item.

Menu Item 2: Learn InGrid Sensor

Information sought:	Do you wish to learn (register) one or more InGrid Sensors?
To Configure:	If you wish to register an InGrid Sensor, press the **[Enter]** key to begin. See section 2.10 for detailed steps. Registration will be enabled for only 60 seconds. While holding the Programmer near the clip, snap the InGrid Sensor into the clip. The

Sensor will automatically register and both the Programmer and the Keypads will triple beep.

If the Sensor fails to register within 60 seconds, the Programmer will leave registration mode automatically. If a system detects two registration bursts during the Sensor registration mode it will not register either Sensor and the Programmer will leave registration mode automatically.

The registration must be confirmed by faulting the Sensor using the magnet.

A zone number and type must be configured for the Sensor.

To Skip:	If you do not wish to learn any InGrid Sensors, press the **[V]** key to scroll to the next menu item.

Menu Items 3-6: Learn Ademco Sensors (Door/Window, Glass, Motion, and Fire)

Information sought:	Do you wish to learn (register) one or more Ademco Transmitters?
Default Value	No Ademco sensors learned.
To Configure:	If you wish to register an Ademco Transmitter, press the **[Enter]** key to begin. See section 2.12.2 for detailed steps. Registration will be enabled for only 15 seconds. While holding the Programmer near the clip, fault the Ademco Transmitter. (Note: The 5808LST Smoke Detector can be faulted by pressing the recessed test button on the front of the unit. The 5800 Motion Sensor can be faulted by moving your hand in front of the sensor. The 5853 Glassbreak Detector can be faulted by tapping it with a pen.) The Ademco Transmitter will automatically register and both the Programmer and the Keypads will triple beep.

If the Ademco Transmitter fails to register within 60 seconds, the Programmer will leave registration mode automatically. If a system detects two registration bursts during the Transmitter registration mode it will not register either Transmitter and the Programmer will leave registration mode automatically.

The registration must be qualified by faulting the Transmitter.

A zone number and type must be configured for the Transmitter.

To Skip:	If you do not wish to learn any Ademco Transmitters, press the **[V]** key to scroll to the next menu item.

Menu Item 4: Learn Key Fob

Information sought:	Do you wish to learn (register) one or more Keychain Remotes?
Default value:	No Keychain Remotes learned
To Configure:	If you wish to learn a Keychain Remote, press the **[Enter]** key to begin. See section 2.15 for detailed steps.
	When prompted, press one of the Keychain Remote's buttons three times. To exit without programming a Keychain Remote, press the **[Esc]** key.
	When the Keychain Remote has been learned, the display indicates "press any key" to continue. Press any key to return to the Standard Menu.
Note:	You must enable a user for each Keychain Remote before the Keychain Remote is operational. The user is enabled when you create it using Item 5 (User Codes) from the Standard Menu. You cannot add a Keychain Remote to users 9-13.
To Skip:	If you do not wish to learn a Keychain Remote, press the **[V]** key to scroll to the next menu item.

Menu Item 5: Learn Ext Siren

Information sought:	Do you wish to learn (register) one or more Auxiliary Sirens?
Default value:	No Auxiliary Sirens learned
To Configure:	If you wish to learn an Auxiliary Siren, press the **[Enter]** key to begin. See section 2.11.2 for detailed steps. Registration will be enabled for only 60 seconds. While holding the Programmer near the Auxiliary Siren, push the button on the Auxiliary Siren. The Auxiliary Siren will automatically register and both the Programmer and the Keypads will triple beep.
	If the Auxiliary Siren fails to register within 60 seconds, the Programmer will leave registration mode automatically. If a system detects two registration bursts during the Auxiliary Siren registration mode it will not register either Auxiliary Siren and the Programmer will leave registration mode

automatically.

The registration must be confirmed by faulting the Auxiliary Siren.

To Skip:	If you do not wish to learn an Auxiliary Siren, press the **[V]** key to scroll to the next menu item.

3.5.3 Home Menu Option 3: Standard Menu

The Standard Menu walks you through the setup of the typical system. The subjects covered in the Standard Menu are:

Menu Item	Subject	Select this menu item if you wish to program:
1	Comm/Pager	The account numbers that are reported to communicators 1 through 4
2	Dial Prefix	These are any special codes required when placing a phone call. The codes programmed here apply to all dialing options.
3	Set Exit Delays	The Keypads' exit delays.
4	Set Entry Delays	The entry delays for all the entry zones.
5	User Codes	The system's user codes.
6	Line Cut Monitor	Whether line cut monitoring is enabled or disabled.
7	Open/Close Reports	Whether the system reports openings and closings to the central station.
8	User Code Len	The user code length for Account 1.

Each menu item is discussed in more detail in the tables that follow.

To program a particular subject, scroll to it using the **[/\]** and **[V]** keys, and then press the **[Enter]** key to access the items within the topic. Once you have moved to the item you wish to change, press the **[Enter]** key to change to the data-entry mode. Input the new data and press the **[Enter]** key again to write the data to memory and to return to navigational mode. The Programmer displays the next menu item. Press the **[Esc]** key to return to the Standard Menu.

You may also move directly to items 1-9 of the Standard Menu by pressing the item number while you are in the navigational mode.

Menu Item 1: Comm/Pager

Information sought:	What are the Account Numbers of Communicators 1 through 4? (In

their default configurations, Communicator 1 is the central station, Communicators 2-4 are blank.)

Default value: Communicator 1: Blank
Communicator 2-4: Blank

To Configure: To change the account number of Communicators 1 through 4, press **[V]** to scroll to the desired Communicator number, and press the **[Enter]** key to select the Communicator Account Number field. Press the **[Enter]** key again to switch to the data- entry mode. Input the appropriate account number for the Communicator, then press the **[Enter]** key to write the number to memory.

To return to the Standard Menu, press the **[Esc]** key.

To Skip: If you do not wish to change the numbers, press the **[V]** key to scroll to the next menu item.

Information sought: What is the configuration of Communicators 1 through 4?

Default value: Communicator 1: Alarm Receiver
Communicators 2 - 4: Unconfigured

To Configure: If you wish to change the configuration of a Communication Device, press the **[Enter]** key to begin. You see:

```
1 Alarm Receiver
2 <Unconfigured>
3 <Unconfigured>
4 <Unconfigured>
```

Enter the number of the communication device you wish to edit or use the **[V]** key to scroll to the desired communicator. Press **[Enter]** to select the device.

To change any of the settings, follow the directions listed below. You can use the **[V]** key to scroll through the programmable items. When you reach the item to be changed, press the **[Enter]** key to switch to the data-entry mode.

Comm Type: Select the appropriate communication protocol for Communicator 1. The only option is "SIA."

Dial Area Code: specify the long distance access code and the area code that the system should dial to reach the communicator. If it is a long-distance call, include a "1"

here. The default is "1800."

Dial Phone number: Specify the telephone number that the system should dial to reach the communicator. The default is blank.

To select another communicator for editing, press the **[Esc]** key. If you wish to return to the Standard Menu, press **[Esc]** twice.

Menu Item 2: Dial Prefix

Information sought: Are any special codes required when placing a call?

Default value: Blank

To Configure: If you wish to change the Dial Prefix, press the **[Enter]** key to begin.

Enter the codes required when connecting to an outside line.

Some of the common codes are:
Outside line from PBX - 8 or 9
5-second Pause - Comma (,)
Wait for Dial Tone – W

To Skip: If you do not wish to reconfigure the communicators, press the **[V]** key to scroll to the next menu item.

Menu Item 3: Set Exit Delays

Information sought: Do you wish to program one exit delay for all of the system's Keypads?

Default value: 80

To Configure: If you wish to program a global exit delay, press the **[Enter]** key, input the number of seconds the exit delay will last, then press the **[Enter]** key again to write the change to memory

To Skip: If you do not wish to program a global exit delay, press the **[V]** key to scroll to the next menu item.

Menu Item 4: Set Entry Delays

Information sought: Do you wish to program one entry delay for all of the system's Keypads?

Default value: 40

To Configure: If you wish to program a global entry delay, press the **[Enter]** key, input the number of seconds the entry delay will last, then press the **[Enter]** key again to write the change to memory.

To Skip: If you do not wish to program a global entry delay, press the **[V]** key to scroll to the next menu item.

Menu Item 5: User Codes

Information sought: Do you wish to change any of the system's user codes?

Default value: Only the Master and the Host Check-in codes have default values (123 and 876, respectively); all other codes are blank. For all codes the number of digits in the user code is determined by the User Code Length topic **(Advanced | Account | User Code Length or Standard | User Code Len**).

To Configure: If you wish to create or change a code, press the **[Enter]** key to begin. You see:

Select User Number: input the number of the user code you wish to change, then press the **[Enter]** key. If the user does not exist, you are asked if you wish to create the user. Press "1" to create the user, or "2" to select a different user number.

User Name: if you wish to input a user's name press the **[Enter]** key, input the name, then press the **[Enter]** key again to write it to memory. The default names are as follows:
Users 1 - 8 are blank
User 9   - Host Check-in
User 10 - Special Bypass User
User 11 - Duress User
User 12 - Master User

Access Code: to change or enter a new code, press the **[Enter]** key, input the new access code, then press the **[Enter]** key again to write the code to memory.

To Skip: If you do not wish to change a code, press the **[V]** key to scroll to the next menu item.

Menu Item 6: Line Cut

Information sought: Do you wish to change the current configuration of Line Cut monitoring?

Default value: Not monitored.

To Configure: If you wish to change the setting, press the **[Enter]** key to switch to the data-entry mode. Use the **[/\]** or **[V]** keys to change the programmed value, then press the **[Enter]** key to write the change to memory.

To Skip: If you do not wish to change the current setting, press the **[V]** key to scroll to the next menu item.

Menu Item 7: Op/Cl Reports

Information sought: Should the system report openings and closings to the central station (Alarm Receiver)?

Default value: No (Opening and closing events are not reported.)

To Configure: To change the programming, press the **[Enter]** key to change to data-entry mode. Use the **[/\]** or **[V]** keys to change the programmed value, then press the **[Enter]** key again to write the change to memory.

To Skip: If you do not wish to change the current configuration, press the **[V]** key to scroll to the next menu item.

Menu Item 8: User Code Length

Information sought: What is the user code length?

Default value: 3 digits

To Configure: To change the user code length, press the **[Enter]** key to begin.

You will see **User Code Length #3**. Press the **[Enter]** key, press the **[Back]** key to erase the programmed number, then type in the desired user code length. Valid range is 3 - 8 digits.

If you enter a value outside the valid range, you will see an error message**.** Press the **[Enter]** key to return to the previous screen.

Next, press the **[Enter]** key to write the change to memory and return to the Standard Menu.

To Skip: If you do not wish to change the current setting, press the **[V]** key to scroll to the next menu item.

3.5.4   Home Menu Option 4: Advanced Menu

Advanced Programming Tree. The first three levels of the Advanced Menu tree are shown in the illustration on the following pages. You will find a definition of each topic in **Appendix B: Glossary of Programmable Topics.**

Keypad

Keypad

Grid Extender

Device Menu

EditView Zone

Device Menu

Zones

Keychain Remote

Aux Siren

Name, Gateway Status, Backup Master Status, Chime Enable, Exit ToneEnable, Entry Tone Enable, Exit Delay Time, Siren Enable, Backlight Latch

Advanced Menu

COMM

COMM

1

1

ew/Edit GE

eplace GE

elete GE

E # -> Master

ew/Edit GE

eplace GE

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Advanced Menu Tree

Account
1 Account
2 Telephone Line
3 System
4 Alarm Sounds

1 — Account:
Account ID, Account Name, Account Mode, User Code Length, Wrap Around, Quick Arm, Alarm Cancel Enable, Confirm Keychain Bell, Keychain is Medical, Installer Name

2 — Telephone Line:
Dial Prefix, Long Distance Access Code, Line Access, Answering Machine Bypass, Voice Mail Defeat Enable, Answer by CID, Update Time From CID Enable, Ring Count, Comm Enable, Line Cut Monitor Enable, Host Phone #, Host Checkin Weeks, Call Service Provider

3 — System:
Display Time, Daylight Savings Time Enable, Low Battery Report, Power Fail Delay, Comm 2 Backup, Latching Chime, Double Dispatch, Delay Display Enable, Delinquent Days, Test Report Enable, Test Time Minutes, Test Time Hours, Test Interval Hours, Defer Test, Dialer Delay Time, Ring Back, Runaway Threshold, Restore Minutes, Expiration Date

4 — Alarm Sounds:
Fire Pattern, Fire Cutoff, Burglary Pattern, Burglary Cutoff, Panic Pattern, Panic Cutoff, Medical Pattern, Medical Cutoff, Gas Pattern, Gas Cutoff, Aux Pattern, Aux Cutoff

Device menu:
1 Device
2 Comm
3 Global Parameters
4 User Access

User Access:
1 View/Edit User
2 Add Keychain
3 Delete User

User Name, User Access Code, Opening/Closing Reports

Note: Predefined User Access Codes
9 Host Access User
10 Special Bypass User
11 Duress
12 Master

Programming

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Advanced Menu topics. The tables that follow list the programmable topics found in Advanced Programming, and show the ways in which each topic can be configured. Rows shaded grey are menu items, rather than programmable topics. Below each grey row are one or more indented rows showing the programmable topics found under that menu item.

Advanced Menu Option 1: Device Menu.

The second item in the Advanced Menu is the Device Menu. From this menu, you can change the programming of the system or any device. The numbers reflect the order in which the devices were learned. The items in the Device Menu will also vary, depending upon which device you are editing.

Topic	Range	Default
1. Grid Extender Menu		
Select Grid Extender		
1. View/Edit Grid Extender		
1. Name	0-20 characters	Keypad Or Signal Extender
2. Gateway Status	Read Only	
3.Mastership Status	Read Only	
4. Chime Enable	Yes/No	Yes
5. Exit Tone Enable	Yes/No	No
6. Entry Tone Enable	Yes/No	Yes
7. Exit Delay Time	1-255 seconds	80 (Brinks) 60 (SIA)
8. Siren Enable	Yes/No	Yes
9. Backlight Latch	Yes/No	Yes
2. Replace Grid Extender		
3. Delete Grid Extender		
4. GC # -> Not Master		
2. Zone/Sensor Menu		
Select Zone/Sensor		
1. View/Edit Zone		
1. Enabled	Yes/No	Yes for all except Line Cut and Duress zones.
2. Zone Type	Select from List A (page 29)	
3. Zone Name	0-20 characters	
4. User Bypass Enable	Yes/No	Yes
5. Motion Bypass Enable	Yes/No	No
6. Special Bypass Enable	Yes/No	No
7. Chime Zone Enable	Yes/No	Yes
8. Entry Delay Time	0-255 seconds	40
9. Restore Report Enable	Yes/No	No
10. Trouble Report Enable	Yes/No	No
11. Dialer Delay Enable	Yes/No	Yes
12. Report Comm 1	Yes/No	Yes
13. Report Comm 2	Yes/No	Yes
14. Report Comm 3	Yes/No	Yes
15. Report Comm 4	Yes/No	Yes
16. Swinger Bypass Enable (SIA only)	Yes/No	Yes
17. Cross Zone Enable (SIA only)	Yes/No	No
18. Fire Verify (SIA Only)	Yes/No	No
2. Replace Zone/		
3. Delete Zone		

Topic	Range	Default
3. Keychain Remote Menu		
Select Keychain Remote		
1. View/Edit Keychain Remote		
1. Name	0-20 characters	Unnamed
2. Button 1		
3. Button 2		
4. Button 3		
4. Button 4		
7. Serial Number	Read Only	
8. Model Number	Read Only	
9. Firmware Version	Read Only	
10. Battery Status	Read Only	
2. Replace Keychain Remote		
3. Delete Keychain Remote		

Topic	Range	Default
4. Auxiliary Siren Menu		
Select Auxiliary Siren		
1. View/Edit Auxiliary Siren		
1. Name	0-20 characters	Unnamed
2. Chime Enable	Yes/No	No
3. Exit Tone Enable	Yes/No	No
4. Entry Tone Enable	Yes/No	No
5. Siren Enable	Yes/No	Yes
6. Latch Strobe	Yes/No	Yes
7. Serial Number	Read Only	
8. Model Number	Read Only	
9. Firmware Version	Read Only	
10. Battery Status	Read Only	
2. Replace Auxiliary Siren		
3. Delete Auxiliary Siren		

Advanced Menu Option 2: Comm (Communicator) Menu. The third item in the Advanced Menu is the Communicator Menu. The Communicator Menu allows you to specify the reporting protocol and telephone number of each of the system's four communicators. The menu also allows you to specify which system events are reported to each communicator. The Communicator Menu includes the topics listed in the next table.

Topic	Range	Default
Select Communicator Number		
1. View/Edit Comm		
1. Comm Name	0-20 characters	1: SIA 2-4: Unnamed
2. Comm Type	SIA or undefined	1: SIA 2-4: undefined
3. Report Account Number	0-5 characters	Blank
4. Dial Attempts	0-15	15
5. Dial Area Code	0-8 characters	1 800
6. Dial Phone Number	0-16 characters	Blank
7. Installer Login	Yes/No	1: No 2-4: Yes
8. Program Error	Yes/No	1: No 2-4: Yes
9. Burglary Alarm	Yes/No	1: Yes 2-4: No
10. Fire Alarm	Yes/No	1: Yes 2-4: No
11. Gas Alarm	Yes/No	Yes
12. Panic Alarm	Yes/No	1: Yes

		2-4: No
13. Medical Alarm	Yes/No	1: Yes 2-4: No
14. Auxiliary Alarm	Yes/No	1: Yes 2-4: No
15. Silent Alarm	Yes/No	1: Yes 2-4: No
16. Burglary Trouble	Yes/No	No
17. Fire Trouble	Yes/No	1: Yes 2-4: No
18. Gas Trouble	Yes/No	No
19. Panic Trouble	Yes/No	No
20. Medical Trouble	Yes/No	No
21. Auxiliary Trouble	Yes/No	No
22. Silent Trouble	Yes/No	No
23. Closing	Yes/No	No
24. Opening	Yes/No	Yes
25. Cancel	Yes/No	Yes
26. Receiver Jammed	Yes/No	Yes
27. Device Error	Yes/No	Yes
28. Device Tamper	Yes/No	No
29. AC Fail	Yes/No	No
30. Low Battery	Yes/No	Yes
31. Battery Fail (Load Shed)	Yes/No	Yes
32. Siren Trouble	Yes/No	Yes
33. Comm Test	Yes/No	Yes
34. Close Delinquent	Yes/No	Yes
35. Exit Error	Yes/No	Brinks: No SIA: Yes
36. Recent Closing	Yes/No	Brinks: No SIA: Yes
37. Installer Action	Yes/No	Yes

Advanced Menu Option 3: Global Parameters. The third item in the Advanced Menu is View/Edit Global Parameters. This item includes the topics listed in the table below.

Topic	Range	Default
1. Account Menu		
1. Account ID	0-8 characters	Blank
2. Account Name	0-20 characters	Unnamed
3. Account Mode	Normal Local System Local Fire	Normal
4. User Code Length	3-8 digits *	3
5. Wrap Around Enable	Yes/No	Yes
6. Quick Arm Enable	Yes/No	Yes
7. Alarm Cancel Enable	Yes/No	Yes
8. Confirm FOB Bell	Yes/No	No
9. FOB is Medical	Yes/No	No
10. Installer Name	0-24 characters	Installer
2. Telephone Line Menu		
1. Dial Prefix	0-8 characters	Blank
2. Long Dist. Access Code	0-16 characters	Blank
3. Line Access	Tone/Pulse	Tone
4. Answering	Yes/No	Yes
Machine Bypass Enable		
5. Voice Mail Defeat Enable	Yes/No	Yes
6. Answer by CID Enable	Yes/No	Yes
7. Update Time From CID Enable	Yes/No	Yes
8. Ring Count	0-15	15
9. Comm Enable	Yes/No	Yes
10. Line Cut Monitor Enable	Yes/No	No
11. Host Phone Number	0-10 characters	Blank
12. Host Check-in Weeks	0-52	13
13. Call Service Provider	Yes/No	No
3. System Menu		
1. Display Time	Yes/No	Yes
2. Daylight Savings Time Enable	Yes/No	Yes
3. Low Battery Report	Yes/No	No
4. Power Fail Delay	0-255 minutes	5
5. Comm 2 Backup	Yes/No	No
6. Latching Chime	Yes/No	Yes
7. Double Dispatch	Yes/No	No
8. Delay Display Enable	Yes/No	Yes
9. Delinquent Days	0-255 days	30
10. Test Report Enable	Yes/No	Yes
11. Test Time-Minutes	0-59 minutes	0
12. Test Time-Hours	0-23 hours	20
13. Test Interval-Hours	0-10,000 hours	4,368 (6 months)
14. Defer Test	Yes/No	Yes
15. Dialer Delay Time	0-255 seconds	20
16. Ring Back (arming configuration)	Yes/No	No
17. Run Away Thrshld	0-15 digits	5
18. Restore Minutes	0-250 minutes	5
19. Expiration Date	MM/DD/YYYY	09/09/9999
20. Exit Restart (SIA Only)	Yes/No	Yes
21. Auto Motion Off (SIA Only)	Yes/No	Yes
22. Reset Swingers (SIA Only)	Yes/No	No
23. Swinger Trips (SIA Only)		1
24. Cross Zone Time (SIA Only)	Seconds	20
4. Alarm Sounds		
1. Fire Pattern	Select from List B (page 29)	Temp Code 3 USA
2. Fire Cutoff Minutes	0-255 minutes	0 (latching)
3. Burglary Pattern	Select from List	Steady

	B (page 29)	
4. Burglary Cutoff Minutes	0-255 minutes	5
5. Panic Pattern	Select from List B (page 29)	Steady
6. Panic Cutoff Minutes	0-255 minutes	5
7. Medical Pattern	Select from List B (page 29)	Medical
8. Medical Cutoff Minutes	0-255 minutes	5
9. Gas Pattern	Select from List B (page 29)	Pulse 1s/1s
10. Gas Cutoff Minutes	0-255 minutes	0 (indefinite)
11. Auxiliary Pattern	Select from List B (page 29)	Silent
12. Auxiliary Cutoff Minutes	0-255 minutes	0

Advanced Programming Option 4: User Access Menu. The fourth item in the Advanced Menu allows you to configure or delete a user or Keychain Remote.

Topic	Range	Default
Select User Number		
1. View/Edit User		
1. User Name	0-20 characters	
2. User Access Code	Determined by User number	Master User 1-2-3; Host Check-in 8-7-6; Blank for all others
3. Opening/ Closing Reports	Yes/No	User 12: Yes
2. Add Keychain		
3. Delete User		

3.5.5 Home Menu Option 5: Test Menu

Option 5 of the Home Menu allows you to conduct a test of the system following installation. For additional information about this option, see page 31. It also allows you to qualify system RF sensors and determine the zone number to which a particular sensor has been assigned using Zone Finder. For more information about this item, see page 33.

3.5.6 Home Menu Option 6: Replace Hardware

Option 6 of the Home Menu allows you to. load the home security system with the configuration stored in Imagine.

3.5.7 Home Menu Option 7: Upload Configuration

Fifteen minutes after you leave the installer programming mode, the BHS-i100 automatically reports programming changes to the Imagine central database. The call is completely automated. During this call, the system synchronizes its clock with the server's.

If you would prefer, you can instruct the system to make this call immediately. To do this, select Option 6 of the Home Menu, then press the **[Enter]** key.

3.5.8 Home Menu Option 8: Browse Events

Option 8 of the Home Menu allows you to view the events stored in the system's memory. For additional information about this option, see page 33.

3.5.9 Home Menu Option 9: Diagnostics

Option 9 of the Home Menu allows you to check the status of the following:

- System Firmware Version

3.5.10 Home Menu Option 10: Programmer Battery Status

Option 10 of the Home Menu allows you to check the status of the following::

- Programmer Battery Voltage

3.5.11 Home Menu Option 11: Set Poweroff Time

Option 11 of the Home Menu allows you to set the length of time the programmer must be inactive before powering down. This feature is active only when the Programmer is operating on battery.

3.5.12 Home Menu Option 12: Set Backlight Time

Option 12 of the Home Menu allows you set the amount of time the Programmer backlight will remain on.

3.6   Programmable Options Lists

The following sections are lists of the programmable options available for some topics.

3.6.1 List A: Zone types	3.6.2 List B: Output patterns
A zone can be configured in any of the following ways: - Unconfigured - Entry/Exit - Secondary - Instant - Follower - Follower Delay - Day/Night - Medical - Assault - Silent Assault - Auxiliary - Duress - Fire - Local - Carbon Monoxide	The system's output patterns can be configured in any of the following ways: - Silent - Steady - Pulse 1s/1s - Temporal Code 3 USA - Temporal Code 3 CAN (Canada) - Blast 1s - Chirp 100ms - Medical

3.6.3   Automatic Zone Configurations

In some cases, selecting one programming option causes the Programmer to reconfigure the settings of other options automatically. When you specify a zone type, a number of other zone-related topics are automatically programmed. For example, when you program a zone to be a fire zone, its Alarm Output Pattern is automatically set at Temporal Code 3 (USA), with a latched cutoff time.

Zone Type	Default Name	Trouble Reporting	Chime	Motion Bypass	User Bypass	Alarm Output Pattern	Cutoff Time	Entry Delay	Dialer Delay
Unconfigured	N/A								
1. Entry/Exit	Door	No	Yes	No	Yes	Steady	5 min.	40 sec.	Yes
2 Secondary Delay	Garage Door	No	Yes	No	Yes	Steady	5 min.	180 sec.	Yes
3. Instant	Window	No	Yes	No	Yes	Steady	5 min.	N/A	Yes
4. Follower	Motion	No	No	Yes	Yes	Steady	5 min.	N/A	Yes
5. Day/Night	Gun Cabinet or Line Cut (Zone 61)	No	No	No	Yes	Steady	5 min.	N/A	Yes
6. Medical	Medical Button (Zone 63)	No	No	No	No	Pulsing	5 min.	N/A	No
7. Assault (Police)	Panic Button (Zone 64)	No	No	No	No	Steady	Indefinite (Latched)	N/A	No
8. Silent Assault	Silent Holdup	No	No	No	No	Silent	Indefinite (Latched)	N/A	No
9. Auxiliary	Auxiliary	No	No	No	Yes	Steady	5 min.	N/A	No
10. Follow Delay	Motion	No	No	Yes	Yes	Steady	5 min.	20 sec.	Yes
11. Fire	Smoke Detector or Fire Button (Zone 62)	Yes	No	No	No	Temp Code 3 USA	Indefinite (Latched)	N/A	No
12. Local	Local	No	No	No	No	Blast (1sec.)	0 min	N/A	N/A
13. Carbon Monoxide	CO Detector	No	No	No	No	Pulsing	Indefinite	N/A	No

3.7 Remote Programming

The BHS-i100 can be programmed remotely. For instructions, contact the Customer Service Downloading department.

3.8 Shortcut Programming

You can navigate through the Advanced Programming tree more quickly by pressing the numbers of the desired menu items. For example, you can move from the Home Menu to the View/Edit Account menu by pressing 4-3-1. Those numbers "4-3-1"are the "shortcut" for View/Edit Account.

If you routinely need to move to a specific point in the programming tree, you may find it helpful to memorize that point's shortcut. For your convenience, the BHS-i100's shortcuts are listed in Appendix C.

4 System Testing And Maintenance

4.1   System

4.1.1   Installer Testing

You can test all of the system's programmed zones/sensors, including soft-zones, in the Programmer's Installer Test mode.

If the system fails to detect that a sensors/transmitter has been faulted and restored inspect those devices for malfunctions.

To conduct an installer test:

1. Register the handheld Programmer to the system.
2. From the Home Menu, select **Option 5: Test Menu**, then option 1 **Installer Test.** The display looks like this, where "XX" indicates the total number of programmed zones in the system:

```
Installer test
XX zones to test
Ready?
1=Yes  2=No
```

3. To begin the Installer test, press **[1]** (yes).
   To exit without conducting the test, press **[2]** (no).
   To stop the Installer test at any time, press the **[Esc]** key. While the test is in progress, the last line of the Programmer's display scrolls through all of the system's zones.
4. Walk through the premises, faulting each zone in turn. When a zone is faulted and restored during the test, the system's sounders beep three times. Motion (follower) zones emit a short and long sound to distinguish them from other zone types. The zone's number and type disappears from the scrolling list. Thus, during the test the display looks similar to the following:

```
Installer test
3/20 tested
9 Entry/Exit
```

This display indicates that: the system is in Installer Test mode, three of the system's 20 zones have been faulted, and zone 9 (a window) is one of the zones that has not yet been faulted.

21. When all zones have been detected, the display looks similar to this:

```
Test done
All zones tested
<Press any key>
```

Press any key to exit Installer Test mode. (Installer Test mode ends automatically if no events are detected in a ten-minute period.)

4.1.2   Pre-Test System Reporting

You can test the system's reporting functions by conducting an Installer Test, described in the preceding section. You may also send a pre-test report, by following the procedure described below:

1. Call the Voice Response Terminal (VRT) to place the system in Pre-test Mode. The mode lasts for one hour.
2. Press the OPTIONS key on the Keypad until the icon display reads TEST ENTER CODE.
3. Enter a valid user code. The system sends a SIA test message.
4. Interpret the test results using the table below:

If	Then
The Keypad beeps and the siren blasts	Test was successful
The Keypad indicates a communication problem exists	Test was unsuccessful (See troubleshooting information on page 34).

22. Call the VRT a second time to obtain the test results.

4.1.3   Grid Extender Status

GE Status displays the GE number, connection status, and mastership status for each Grid Extender in the system. The user does not have to refresh this display to receive status updates.

4.1.4   2.4 Ghz RSSI

The RSSI is the Received Signal Strength Indication showing how strongly any GE is receiving the wireless signal from the Master.

4.1.5   Qualify Sensors

You can use the qualification test to see how well messages, between the GEs and a sensor, are being to received. The test sends a burst of messages, and results show the percentage of messages received on the 2.4 GHz and 345 MHz channels. The number of GEs responding to the sensors is recorded and the signal-to-noise ratio on the 345 MHz channel is display.

4.1.6   Setting the System's Clock

The system's internal clock is automatically set by a telephone call to the Imagine server. That call takes place when the system's programming is changed. Approximately 15 minutes after an installer programming session ends, the system calls the Imagine to synchronize the system's new programming with the copy stored in the Imagine's database.

Imagine automatically adjusts the system's clock to reflect the time zone in which the customer resides. The Imagine also assumes that the system is located in an area that observes seasonal time changes (such as Daylight Savings Time). If seasonal time changes are not observed in the customer's

area, program the Daylight Savings topic "no." The customer cannot set of adjust the Keypad's clock.

4.2   Maintaining Devices

4.2.1   Replacing A Grid Extender

To replace a defective Grid Extender:

1.   Install the new Grid Extender, use **Advanced Menu | Device | Grid Extender | Choose Device | Replace** and proceed to add the new GE as per section 2.9. The newly added GE will contain the same configuration values as the old GE.

4.2.2   Replacing A Sensor

To replace a defective sensor:

1.   Install the new sensor, use **Advanced Menu | Device | Zone/Sensor | Choose Device | Replace Zone** to configure the new sensor the same way the existing sensor was configured. Refer to sections 2.10 and 2.12.

4.2.3   Replacing Auxiliary Siren

To replace a defective auxiliary siren:

2.   Install the new sensor, use **Advanced Menu | Device | Auxiliary Siren | Choose Device | Replace Siren** to configure the new auxiliary siren the same way the existing auxiliary siren was configured. Refer to section 2.11.2

4.2.4   Sensor Maintenance

The customer is required to test the system once a week to identify any sensor malfunctions. The customer is also required to clean the smoke detector every three months. See the User's Manual for more information on these tests and the cleaning procedure.

4.2.5   Deleting A Keychain Remote

To delete a lost or inoperative Keychain Remote, do the following:

1.   Connect the handheld Programmer to the programming port (J3) of the system. Enter installer programming.
23.   From the Home Menu, choose **Advanced | Device | Keychain Remote | Select Keychain Remote | Delete Keychain Remote.** Select the Keychain Remote to be deleted. The Programmer asks you to confirm your choice; press **[1]** (yes) to proceed with the deletion, (or **[2]** (no) to stop). When the Keychain Remote is deleted, the Programmer displays the Keychain Remote menu.
24.   If you are replacing the Keychain Remote, learn a new Keychain Remote as described in section 2.15.

4.3   System Measurements

4.3.1   Device Battery Status

Each Grid Extender and Auxiliary Siren in the system contains a backup battery used only in the event of AC power loss. This battery is periodically tested under load to determine its status. If a battery can no longer hold a charge, a Low Battery status is reported on the Keypad. With the Programmer, the current battery charge can be checked.

5 Troubleshooting

5.1 Browse Events

The BHS-i100 system stores more than 100 events in its event memory. You can review these events in installer programming. From the handheld Programmer's Home Menu, select Option 8: Browse Events. The Programmer displays the following list:

```
1 Browse Oldest
2 Browse Newest
3 View Errors
4 View Upload
5 Clear Events
```

To view the events in the order they occurred, select **Browse Oldest**. To view the events in reverse chronological order (most recent to least recent), select **Browse Newest.** Scroll through the list using the **[/\]** or **[\/]** keys. You may exit the browser by pressing the **[Esc]** key.

Certain codes are used in the Event Memory log. These codes are listed below:

Line on which code appears	Code	Significance
2	--	The event will not be reported
	P	The event's report is pending
	R	The event has been reported
	F	All attempts to report the event have failed

A typical display looks like this:

```
03:14      9/18/05
-pRF
System error:
Power-on reset
```

The first line of the display indicates that the event occurred shortly after three AM on 18 Sep 2005.

The second line of the display indicates whether the event was reported to the system's communicators, and whether each report was successfully completed. Each of the four spaces in the line represents one of the four communicators the system supports. The character that occupies the first space summarizes how the event was communicated to the first communicator. The second character in the line refers to the second communicator, and so on. Thus, in the example above, the event was: 1) not reported to communicators 1; (because the system programming did not direct the system to do so); 2) is about to be reported to Communicator 2; 3) was reported to communicator 3; and 4) could not be reported to communicator 4. The final two lines of the display describe the type of event, in this case, a power-on reset.

Select **View Upload** to see a list of the records that are pending upload to Imagine.

To erase all of the events in event memory, select **Clear Events**.

5.2 System information

5.2.1 Determining A Zone Number

The Zone Finder allows you to determine the number of a particular zone. To use it, do the following:

1. Register the Programmer to the system. Enter installer programming. Choose **Test Menu | Zone Finder.**
2. Wait until the Programmer's display reads "Ready."
3. Fault the zone.
4. When the programmer beeps Observe the number displayed on the screen. This is the number of the faulted zone or input.

The Programmer displays only the last zone that has been faulted. To ensure that you obtain the correct zone number, do not fault another system zone (such as one of the system's motion sensors) before reading the Programmer's display.

5.2.2 Determining A Grid Extender's ID

The GE Finder allows you to determine the number of a particular Grid Extender. To use it, do the following:

1. Register the Programmer to the system.
2. Navigate to Test Menu | GE Finder
3. Wait until the display on the programmer reads the following:

```
GE Finder
Press 0 or reg button

Press Esc to end
```

4. Visit each GE in the system and press the 0 button if the GE is a keypad or the button on the front of the GE if it is a signal extender.
5. When the programmer beeps, observe the number displayed on the screen. This is the number assigned to the GE.

```
GE Finder
Press 0 or reg button
    Heard from GE 1
Press Esc to end
```

6. The programmer will display the number of the last GE visited.

5.2.3 Determining the System Firmware Version

You can identify the version of firmware running on the system by doing the following:

1. Register the Programmer to the system.
2. Choose Diagnostics | Firmware Version
3. The programmer will display the following:

```
Firmware Version 1751


<Press any key>
```

25. When finished, press any key to return to the previous menu.

5.3 Troubleshooting Specific Problems

5.3.1 Grid Extender Will Not Power Up

Condition: When power is applied to the GE, it fails to operate.

Indications: None of the keys, buttons, or LEDs operate properly.

Possible causes:
- The backup battery may be defective.
- The power supply may be defective.
- The AC breaker switch may be off.
- The GE needs to be reset to default state.

Solutions:
- If the battery is defective, replace it. (Disconnect the electrical power to the system before investigating.)
- Move the breaker switch to the ON position.
- Reset the GE to factory defaults as described in section 2.9.6.
- If none of these solve the problem, replace the GE.

5.3.2 Test Report Fails

Condition: The system fails to send a successful event report.

Indications:
The system fails to send a successful event report.

Possible causes:
- The telephone service to the system is out.
- The telco interface is improperly wired.
- The system is improperly programmed.

Solutions:
- Test reporting when telephone service has resumed.
- Verify the wiring connections match those shown in section 2.8, and replace any wires that are damaged.
- Verify that the system is programmed as follows:
  o the communicator is properly configured;
  o the communicator's telephone number is properly programmed;
  o test reporting is enabled;
  o the system's account mode is correctly configured.

5.3.3 Event Report Fails

Condition: The system fails to send a successful event report.

Indications:
The system should have reported a system event to the central station or to another communicator, but it did not.

Possible causes:
- Digital communication is impaired, as described in the previous section.

- The system is improperly programmed.

Solutions:
- Verify that the telco interface is properly wired and that telephone service is in place, as described in the preceding section.
- Verify that the system is programmed as follows:
  o the communicator is properly configured;
  o the communicator's telephone number is properly programmed;
  o the zone is programmed to report that type of event to the communicator;
  o the system's **Advanced | Global Parameters | Account Mode** topic is programmed for normal and not programmed for local fire or local system.

5.3.4 Auxiliary Siren Does Not Sound

Condition: The siren is malfunctioning.

Indications: The siren does not sound when or as it should.

Possible causes:
- No AC power to the siren.
- No battery in the siren.
- The siren was not learned into the system.
- The system is improperly programmed.

Solutions:
- Verify AC power connections to the siren. Press the test button on the siren to verify sound and/or strobe.
- Verify that the siren is listed in the **Advanced | Device | Auxiliary Siren Menu**.
- Verify that the system is programmed as follows:
  o the alarm cadence is correct;
  o the alarm cutoff time is correct;
- If these solutions are not effective, replace the siren.

5.3.5 Keychain Remote Not Working

Condition: A system Keychain Remote does not work.

Indications:
The system does not respond to the commands of a Keychain Remote.

Possible causes:
- The Keychain Remote or the system was not properly programmed,
- The customer has deleted the Keychain Remote's user code.
- The Keychain Remote's battery needs replacing.
- The Keychain Remote is defective.
- The Keychain Remote is out of range.
- The Keychain Remote's signal is being blocked.
- The system is not ready to arm. Note: the system still arms when the garage door is open, provided that the door is programmed as an Exit Force Arm zone. If the garage door is open at the end of the Exit Delay, it is bypassed until it is no longer faulted.

Solutions:
- Verify that you have both learned the Keychain Remote and created a user code for that Keychain Remote.
- Watch the Keychain Remote's Battery Indicator LED as you press and hold the red ON button for five seconds. If the LED blinks or fails to light, replace the battery. If the

LED is steadily lit, the battery is good. (The Keychain Remote takes one A23 battery.)
- Attempt to arm the system while standing in front of the Keypad. If the Keychain Remote's signals are being received, the Keypad's display will mirror the changing status of the system. If the signals are not being received, repeat the Keychain Remote learning sequence described in section 2.15.
- Correct any not-ready conditions, then try to use the Keychain Remote again.
- If the system is working properly, replace the Keychain Remote. If the system is not working properly, replace one or more GE's.

5.4   Keypad Service Messages

The table lists the service (or trouble) messages displayed by the icon Keypad, and the significance and corrective measures for each.

Message	Significance	Correction
LINE CUT	The telephone line has been cut or service has been interrupted.	Hang up all telephones. If the telephone service is interrupted, instruct the customer to call the telephone company.
Cxx LOW BATT, CALL (800) 445-0872	The voltage of the backup on GE xx has dropped below 3.1V.	Make sure the unit is connected to AC power. Allow the battery 24 hours to recharge. If problem persists, replace the battery.
Cxx NO AC	The AC power to GE number xx has been lost.	Locate the GE which is reporting low power using the GE Finder function from the programmer. If there is electrical power to the building, check and reset the circuit breaker. Verify the transformer wiring, or transformer. Replace GE if necessary
Cxx TROUBLE CALL (800) 445-0872.	Communication failure. The system could not communicate with GE xx	Use the GE finder feature to locate (by process of elimination if necessary) the GE which is not able to communicate. Verify the GE has power and is responding normally. Replace the GE if necessary.
TROUBLE, CALL (800) 445-0872. Also, the display reads "CP"	Communication failure. The system could not make a report to the central station.	Verify the telephone service is working. Verify wiring connections. Replace any
		defective wires. Replace GE if necessary.
TROUBLE, CALL (800) 445-0872. Also, display reads "CF"	Device supervisory problem. Caused by wiring, power, or communication problem.	Verify the wire connections. Replace any defective wires. Replace GE if necessary
TROUBLE, CALL (800 445-0872. In addition, the display reads "CH"	Host failure. The control system could not complete a call to the Imagine.	Verify the telephone service is working. Verify the system programming. Verify wiring connections. Replace any defective wires. Replace GE, if necessary.
TROUBLE, CALL (800) 445-0872. In addition, the display reads "CJ"	RF Interference. The Receiver has trouble receiving messages due to RF interference.	Try to locate the source(s) of RF interference (such as from cell phones, microwaves, wireless phones or devices, etc.) and relocate them.
ZONE xx TROUBLE	Trouble on zone.	Use the zone finder feature from the programmer to locate the zone. If the trouble follows a canceled fire alarm, allow time for any airborne particles to disperse. Replace the detector if necessary.
J	Receiver Jammed	Try to locate the source(s) of RF interference (such as from cell phones, microwaves, wireless phones or devices, etc.) and relocate them.

6 Compliance information

6.1 UL Compliance

6.1.1 Residential Listings

When installed following the guidelines presented below, the BHS-i100 system is compliant with these agency listings:

- UL 985 – Household Fire Warning System Units
- UL 1023 – Household Burglar Alarm System Units
- UL 1635 – Digital Alarm Communicator system Units
- UL 1637 – Home Health Care Signaling Equipment

6.1.2 Hardware Guidelines

- Use only UL listed devices.
- Use recognized limited energy cables.
- Do not plug the power supply into a receptacle that is controlled by a switch. Use an approved InGrid power supply.

The backup battery requirements are:

- 24 hour backup with 4 minute alarm time - Residential Fire
- (US & Canada), Home Health Care
- 4 hour with 5-15 minute alarm time - Residential Burglary
- (US & Canada) and DACT
- Fire zones must use the ADEMCO 5808LST wireless smoke detector.
- The primary sounding output device should be a siren for residential systems.
- Install the Keypads within the protected area. If mounted outside of protected areas, Keypads must be set up for tamper protection.
- Use SIA format with Silent Knight 9800 Receiver.

6.1.3 Programming Guidelines

To ensure that the BHS-i100 system is compliant with the Listings in Section 6.1.1, program the system as follows:

- Program each Keypad's exit delay to be 60 seconds or less. **(Standard Menu | Set Exit Delay)**
- Program each entry delay for 45 seconds or less. **(Advanced Menu | Device Menu | Zone | Vw/Edt Zone | Entry Delay Time)** *Program each Entry/Exit Zone individually.*
- User Codes must be at least 4 digits long **(Advanced Menu | Global Parameters | Account | User Code Length).**
- Program all burglary sounding devices to operate for at least 4 minutes. **(Advanced Menu | Global Parameters | Alarm Sounds | Burglary Cutoff)** *Set Burglary Cutoff Time to a minimum of 5 minutes for Home Health Care applications.*
- Burglary output pattern must be steady.
- Fire output pattern must be Temp Code 3 (USA or CAN) alarm cadence.

- Medical zones must be programmed for silent or a pulsing cadence.
- No zone may be programmed for silent alarm.
- Do not program the system to dial a police station.
- Do not program the system to dial an emergency, police station, or fire alarm number.
- Program the fire alarm time-out for manual shutdown. **(Advanced Menu | Global Parameters | Alarm Sounds | | Fire Cutoff;** program 0.)
- Program the dialing attempts for Comms 1 to be at least 5, and no more than 10. **(Advanced Menu | Comm | Vw/Edt Comm | Dial Attempts)**
- Program the test message interval to once every 24 hours. **(Advanced Menu | Global Parameters | System | Test Interval Hrs)**
- Program the system to report all fire trouble conditions to the central station. **(Advanced Menu | Comm | Vw/Edt Comm | Fire Trouble**; program "yes" for Communicator 1.)
- Enable AC and Battery trouble reporting**. (Advanced Menu | Comm | Vw/Edt Comm | AC Fail**; *and* **Advanced Menu | Comm | Vw/Edt Comm | Low Battery;** program both as "yes" for Communicator 1.)
- Do not program a 24-hour zone to allow bypassing. **(Advanced Menu | Device | Zone | Vw/Edt Zone | User Bypass;** *and* **Advanced Menu | Device | Zone | Vw/Edt Zone | Motion Bypass**; *and* **Advanced Menu | Device | Zone | Vw/Edt Zone | Special Bypass**; program "no" for each 24-hour zone.)
- Disable the dialer delay. **(Advanced Menu | Global Parameters | System | Dialer Delay**; program for 0.)

6.2 CSFM Compliance

6.2.1 Installation Guidelines

To install a BHS-i100 system that is compliant with the California State Fire Marshall residential fire installation requirements, use the following setup:

- Use a backup time of 24 hours.
- Use the Auxiliary Siren as the primary sounding device (check on this).
- Fire Verification Feature must be disabled.

6.3 Guidelines

6.3.1 Related Installation References

- Residential Burg. - UL 1641 – Installation and Classification of Residential Burglar Alarm Systems
- NFPA 70-1996

6.3.2 SIA Programming/Installation Guidelines

BHS-i100, which is marked with the integral UL/SIA label, complies with the Control System Standard ANSI/SIA CP-01-2000: Features for False Alarm Reduction.

The systems come defaulted in the SIA mode and contain some programming areas, which are not available in the Brinks Default mode. Below are the default values.

Advanced Menu | Global Parameters | System Menu
Cross Zone Time: 20 seconds
Swinger Trips[5]: 1
Automatic Swinger Reset[5]: Disabled
Restoral Minutes[5]: Default is 5 minutes

Advanced Menu | Device Menu | Zone/Sensor Menu
Cross Zone Enable: No
Swinger Bypass[5]: Enabled for Non-Fire zones, disabled for Fire zones.
Fire Verification Enable: No.
Dialer Delay Enable: Enabled for Non-Fire zones, Disabled for Fire zones

Standard Menu
Exit Time: 60 seconds (Residential), Entry Time: 30 seconds

Advanced Menu | Global Parameters | System Menu
Exit Time Restart: Yes
Automatic Motion Off (Auto stay arm on unvacated premise feature): Yes (System automatically arms with Motions Off if no Exit/Entry zone is opened during the Exit Delay countdown.)
Dialer Delay (Abort Window): 30 seconds
Double Dispatch Enable: Yes (Requires the user to press the Fire, Medical, or Panic emergency key twice within three seconds to trigger a soft zone alarm.)

Advanced Menu | Global Parameters | Account Menu
Alarm Cancel Enable: Yes

Advanced | Comm Menu | Vw/Edt Comm
Exit Error Event Report: Yes
Recent Closing Event Report: Yes

Standard Menu | User Codes
Duress Code 12 – Blank

Standard Menu | Dial Prefix
Area Blank - used to enter call waiting digits/characters

<u>Additional Notes and Cautions:</u>

1. The aggregate of the Entry Delay and Abort Window (Dialer Delay) shall not be programmed to exceed one minute.
26. <u>Caution:</u> A call waiting cancel on a non-call waiting line will prevent successful connection to the central station.
27. The system will not allow Duress Codes to be programmed as an existing user access code plus one (+ 1).
28. Recent Closing interval is always enabled.
29. Automatic Swinger Reset (default disabled) - If enabled, zones shut down due to swinger bypass will automatically reset after 48 hours with no trips on any zone. Zones can also be manually reset.
    Swinger Bypass - If enabled, the zone will shut down after the programmed value in the Swinger Trips area.
    Restoral Minutes - sets the time that a particular zone must be restored before it causes another alarm if re-violated.
30. Additional Keypads may be required so that Exit/Entry annunciations can be heard within the entire protected area.
31. System Test is initiated under the installer programming mode under **Test | Installer Test.**

32. If Cross Zoning is enabled, do not Cross Zone Exit/ Entry and Fire zone types.

7 Supplemental information

7.1 System Specifications

Alarm output:	Internal piezo siren
Transmission format:	DTMF or pulse
Keypad enclosure:	High-impact ABS plastic
Operating temperature:	0-50 degrees C
Relative humidity:	0-95% non-condensing
Operating voltage	5 V Class 2 plug-in power supply
Residential system weight:	1.5 pounds
Reporting format:	SIA Level 1
Ringer equivalence:	0.1B
Standby power:	3.6 VDC, 1800 mAH NiMH battery
System test:	Automatic and/or manually initiated by the user/installer
UL compliance:	UL 985, UL 1023, UL 1635, UL 1637
Zones:	59

7.2 Standby Battery Requirements

The table below identifies the battery backup times called for by the regulatory requirements listed. For the duration of the backup time, the system must function properly on DC power, without false alarm.

Requirement	Backup time, hours
UL 985: Residential Fire	24
UL 1023: Residential Burglary	4
UL 1635: Mercantile	4
UL 1637: Home Health Care	24

7.3 Zone Types

The zones of the BHS-i100 can be programmed in one of the following 14 ways:

- Unconfigured zone
- Entry / exit zone
- Exit Force Arm zone
- Instant zone
- Follower zone
- Day/ Night zone
- Medical zone
- Assault zone
- Silent assault zone
- Auxiliary zone
- Follow delay zone
- Fire zone
- Local zone
- Carbon Monoxide zone

Each zone type is described on the following pages.

7.3.1 Unconfigured Zone

This zone type is used for those zones for which no sensors are installed (a disabled zone). No alarms can result from an unconfigured zone.

7.3.2 Entry / Exit Delay Zone

Zones that monitor the common points of entry and exit should be programmed as entry/exit zones. The flowchart shows the conditions under which a fault on an entry/exit delay results in an alarm.

Entry / Exit Delay Zone
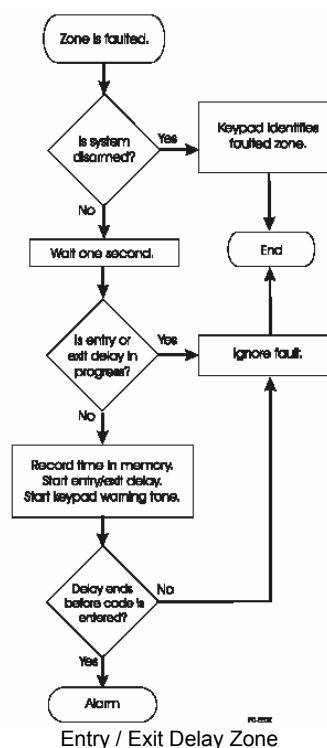
7.3.3 Exit Force Arm (Secondary Delay) Zone

Zones that monitor the building's alternative points of entry and exit should be programmed as secondary delay zones. An example of this would be a garage door. This zone is not enabled until it is restored at the close of the entry or exit delay. The flowchart shows the conditions under which a fault on a secondary delay zone results in an alarm.

Secondary Delay Zone
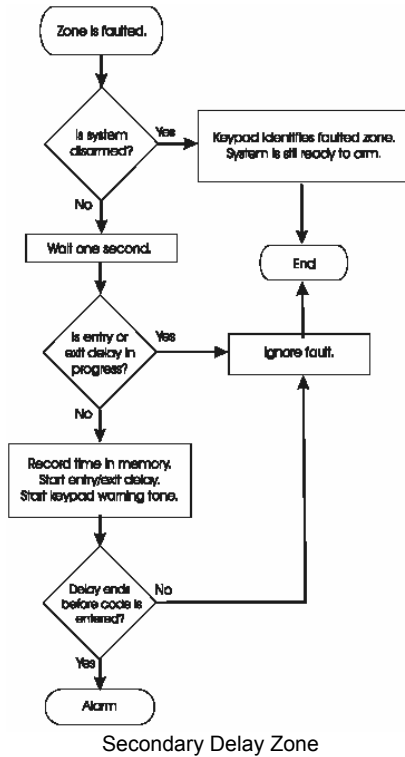
7.3.4   Instant Zone

Zones that protect areas that are not common points of entry can be programmed as instant zones. An example would be an interior motion detector. The flowchart shows the conditions under which a fault on an instant zone results in an alarm.

Instant Zone
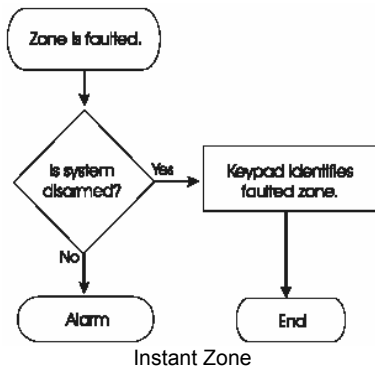
7.3.5   Follower Zone

A follower zone is typically used for motion sensors located along the route that the customer takes to leave the building. The flowchart shows the conditions under which a fault on a follower zone results in an alarm.

Follower Zone
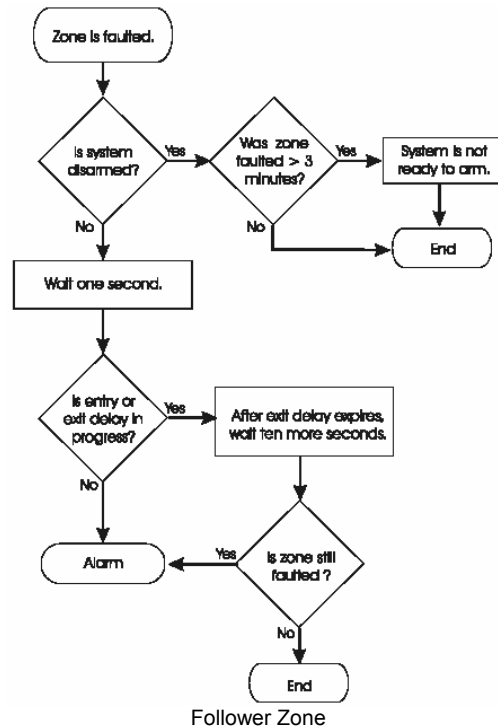
7.3.6   Day / Night Zone

When a Day/Night Zone is used to monitor line cuts, the zone behaves in the following ways when a line is cut:
If the system is armed, the siren sounds.
If the system is disarmed, the Keypad displays a trouble message and beeps. The user can silence the beeping manually.

The flowchart shows the conditions under which a fault on a Day/Night zone results in an alarm.
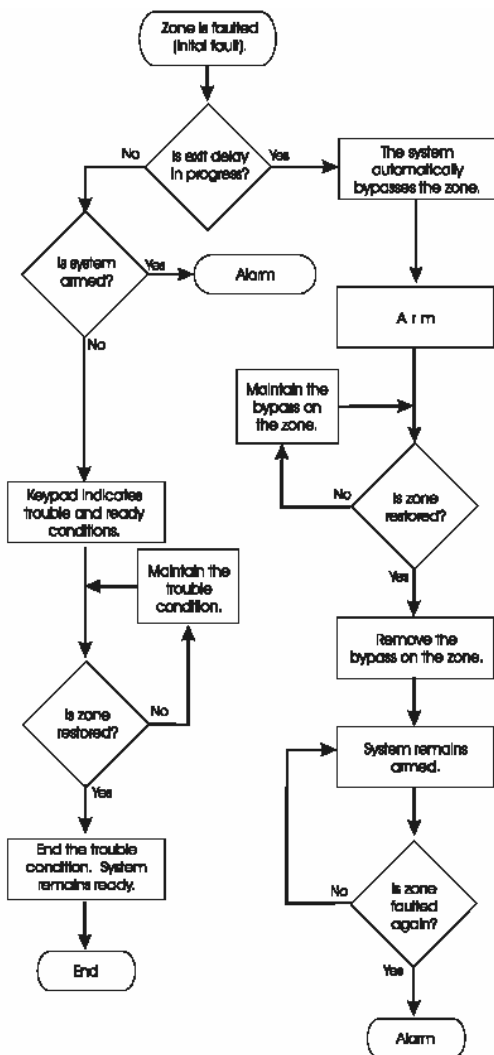
Day / Night Zone

7.3.7 Medical Zone

A pushbutton device on this 24-hour zone type can be used to summon help in a medical emergency. An alarm is triggered when the medical zone is faulted. The Keypads buzz to annunciate the alarm.

7.3.8 Assault Zone

A pushbutton device on this 24-hour zone type can be used to summon the police when a crime is in progress. An alarm is triggered when the assault zone is faulted. The sirens sound to annunciate the alarm.

7.3.9 Silent Assault Zone

A pushbutton device on this 24-hour zone type can be used to summon the police when a crime is in progress. Like the assault zone, an alarm is triggered when the silent assault zone is faulted. However, in this zone type, the sirens do not sound.

7.3.10 Auxiliary Zone

A monitoring device on this 24-hour zone type can be used to summon help when a potentially dangerous condition exist, such as frozen pipes, or water leaks. A push button device on the zone can also be used to trigger silent report tampers. An alarm is triggered when the auxiliary zone is faulted. However, no sirens sound.

7.3.11 Follower Delay Zone

A follower delay zone is typically used for motion sensors located along the route that the customer takes to leave the building. A follower delay zone is also a good substitute for an instant zone, because the twenty second delay that occurs before an alarm sounds can prevent false alarms. The flowchart shows the conditions under which a fault on a follower delay zone results in an alarm.
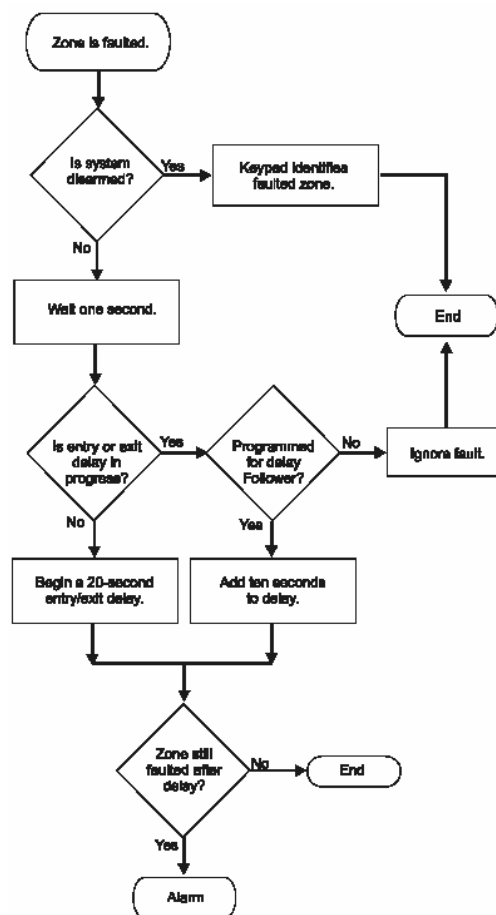
Follower Delay Zone

### 7.3.12 Fire Zone

Zones that monitor smoke or heat detectors should be programmed as fire zones. Fire zones are 24-hour zones. They are always supervised with normally-open contacts.

An alarm is triggered whenever the zone is faulted. The systems sirens sound. If an alarm on a fire zone and an alarm on another type of zone occur at approximately the same time,

the sirens will sound the Temporal Code 3 cadence for the fire alarm. The sirens and bells of all other alarms are overridden.

7.3.13 Local Zone

This zone type is a 24-hour zone which, when faulted, sounds a one-second siren blast. All alarms are local. This zone can be used to identify when a pool gate, a gun cabinet, a chemical storage area, or a liquor cabinet is opened. A local alarm results whenever the zone is faulted.

7.3.14 Carbon Monoxide Zone

This zone type is used for those zones to which a carbon monoxide detector is wired. If carbon monoxide is detected, a report will be sent with SIA gas alarm signals Gxzzz where zzz is the zone number.

7.4   Blank And Sleep Modes

Blank Mode and Sleep Mode are used to either mask or suspend the system's operation. These features do not need to be enabled or disabled in system programming.

NOTE	If any of the system's zones are programmed as fire zones, the system cannot be placed in Sleep Mode. However, systems with fire zones can be placed in Blank Mode.

Blank Mode. In Blank Mode, the system is completely operational, but the Keypad's LEDs and display are turned off. The system can be armed and disarmed and can detect and report alarm conditions. Blank Mode continues until the user turns it off.

To enter Blank Mode:
1.   If the system is on, turn it off by entering a user code.

33.   Press and hold the CANCEL key for 15 seconds. When prompted, enter the master user code.

To end Blank Mode:
34.   Press and hold the CANCEL key for 30 seconds.

Sleep Mode. In Sleep Mode, the system shuts down for 24 hours. It cannot be armed or disarmed, and it does not detect or report alarm conditions After 24 hours have passed, the system automatically returns to normal operation.

To enter Sleep Mode:
1.   If the system is on, turn it off by entering a user code.

35.   Press and hold the CANCEL key for 15 seconds. When prompted, enter the master user code.

36.   Within the next ten seconds, press the CANCEL key again (do not hold it for 15 seconds this time). Enter the master user code again.

To end Sleep Mode:
Sleep Mode ends automatically after 24 hours have passed. To end Sleep Mode sooner, call Customer Care at 1 (800) 445-0872 for assistance.

Appendix A: System Configuration Worksheet

	BHS-i100	Installed by: _____
BRINKS HOME SECURITY.	System Information Worksheet	Date: _____

Grid Extender	Number	Location/Other
Keypad	1	
	2	
	3	
	4	
	5	
	6	
Signal Extender	1	
	2	
	3	
	4	

Keychain Remote 1	Button	User Number:
	1	
	2	
	3	
	4	

Keychain Remote 2	Button	User Number:
	1	
	2	
	3	
	4	

Keychain Remote 3	Button	User Number:
	1	
	2	
	3	
	4	

Keychain Remote 4	Button	User Number:
	1	
	2	
	3	
	4	

Zone	Type	Location/Other
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
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59		
60	Fixed	Keypad Tamper Switch
61	Fixed	Line Cut
62	Fixed	Fire
63	Fixed	Medical
64	Fixed	Police

Appendix B: Glossary of Programmable Topics

--- A ----

AC Fail (Report). Tells the central station (or other communicator) that the system has experienced an AC power failure for the amount of time specified in the AC Power Fail Delay. Program "yes" to enable this type of reporting for that particular communicator.

Account Comm 2-4 Select. Configures specialized reporting options for the customer.

Account ID. The Account ID (also called AID) is used for all references to the system.

Account Mode. See Mode (Account).

Account Name. A description of the account. It is used by the Imagine to more easily find the account. Enter as many as 24 letters or numbers.

Alarm Cancel Enable (Account). Allows the user to cancel an alarm by entering a valid user code. The code must be entered within a certain number of seconds after the initial alarm condition. If the alarm has not been reported, no alarm report is sent. If the alarm has been reported, a cancel report is sent instructing the central station to disregard the alarm. Program "yes" to give the user this ability.

Answering Machine Bypass Enable. Ensures that the Imagine software connects with the system rather than with an answering machine. The system samples the telephone line following the ring determine if the caller is the Imagine software. If so, the system seizes the line and completes the connection. Otherwise, the system ignores the call. Program "yes" if the homeowner has an answering machine.

Auxiliary Alarm (Report). Tells the central station (or other communicator) that there has been an alarm on an Auxiliary zone. These zones are generally 24-hour zones for monitoring freezers or water levels in basements. Program "yes" to enable this type of reporting.

Auxiliary Pattern. The cadence used most commonly to annunciate alarms on auxiliary zones. Choose the desired cadence from the list of options.

Auxiliary Cutoff Minutes. How many minutes the output remains active before turning off after an alarm on an auxiliary zone. Program a value within the range of 0-255 minutes, where 0 latches the output.

Auxiliary Trouble (Report). Tells the central station (or other communicator) that a trouble condition exists on an auxiliary zone. Program "yes" to enable this type of reporting.

---- B ----

Battery Fail (Report). Tells the central station that the backup battery's voltage has dropped below 3.0 VDC, and that the system is preparing to power down to prevent permanent damage to the battery. This is also known as "load-shedding." (A low battery condition, in contrast, occurs when the battery voltage falls below 3.1 VDC.) This report is the last report sent before the system goes off line. Program "yes" to enable this type of reporting.

Burglary Alarm (Report). Tells the central station (or other communicator) that an alarm has occurred on a burglary zone. Common burglary zones include entry/exit, instant, and follower zones. Program "yes" to enable this type of reporting.

Burglary Pattern. The cadence that annunciates alarms on burglary zones. A burglary pattern would normally be selected with the following zone types: entry/exit, force exit, instant, follower, and delay follower. Burglary alarm conditions are generally annunciated with a steady cadence. Choose the desired cadence from the list of options.

Burglary Cutoff Minutes. How many minutes the output remains active before turning off after an alarm on a burglary zone. Program a value within the range of 0-255 minutes, where 0 latches the output.

Burglary Trouble (Report). Tells the central station (or other communicator) that a trouble exists on a burglary zone. Program "yes" to enable this type of reporting.

---- C ----

Cancel Alarm (Report). Tells the central station (or other communicator) that a valid user code was entered after an alarm and before the Cancel Report Timer expired. Entering the user code would also silence the sounders. Program "yes" to enable this type of reporting.

Chime Enable. Makes the chime feature active at the local Keypad. The Keypad's chime sounds if a perimeter zone is faulted (zone type entry/exit, forced exit, or instant) while the system is disarmed, provided that the chime zone topic is enabled for that particular zone. Program "yes" to allow for this type of chiming.

Chime Zone Enable. Causes the Keypad's chime to sound for one second when the zone is faulted while the system is disarmed. This topic is normally used with perimeter zones (doors and windows). Program "yes" to allow the chime to sound for the specific zone.

Close Delinquent (Report). Tells the central station (or other communicator) that the system has not been armed in the specified number of days. Program "yes" to enable this type of reporting; program the Delinquent Days topic with the desired number of days.

Closing Reports (Report). Tells the central station (or other communicator) that the system has been armed. Program "yes" to enable this type of reporting for that particular communicator. Be sure that the **Open/Close Reports (User Privilege)** topic is also enabled for each user whose arming activities is to be reported.

Comm 1 Report Account. Identifies the account number that is used to report alarms and other events to Communicator 1. (Similar topics exist for communicators 2-4.) This number becomes the system's installer code.

Comm 2 Backup. Directs the system to automatically send reports to the backup communicator when all attempts to send the report to communicator 1 have failed. Program "yes" to enable this type of backup reporting.

Comm Enable. Activates the communicator, allowing it to report events. This topic does not affect remote programming (Downloader Imagine sessions). Program "yes" to allow the communicator to send reports.

Comm Name. Describes the device being telephoned. Giving a communicator a name allows you to easily identify it. Examples of communicator name could be "central station," "emergency backup receiver," etc. Enter up to 24 letters or numbers.

Comm Test (Report). When test reports are enabled, this sends the Test Report code to the specified communicator. Program "yes" to enable this type of reporting.

Comm Type. Identifies the protocol used by the control system for reporting of events. The SIA protocol is used for reporting to central station receivers.

Confirm Fob Bell. Turns the bell output on for two seconds whenever the system is armed or disarmed. (This includes Arm with Motions Off.) When this topic is enabled, a strobe is normally connected to the bell output. Program "yes" to enable this form of confirmation.

---- D ----

Daylight Savings. Instructs the system to automatically adjust the system's clock to compensate for Daylight Savings Time. Program "yes" if the customer lives in a location where Daylight Savings Time is observed.

Defer Test. Causes the system to skip a scheduled test report if the system has successfully reported an event to the central station during the programmed interval. Program "yes" to defer test reporting under these circumstances.

Delay Display Enable. Instructs the icon Keypad to display the seconds remaining in the entry or exit delay. The number appears in the Keypad's numeric display. Program "yes" to enable this display.

Delinquent Days. Determines how long the system can remain disarmed before a delinquent report is sent to the central station. (In contrast, the system can remain armed indefinitely without triggering a report.) Program 0-255 days, where 0 allows the system to remain disarmed indefinitely.

Device Error (Report). Tells the central station (or other communicator) that an error has occurred on a device. Program "yes" to enable this type of reporting.

Device Name. Describes the type or location of a device. Examples could include "front door Keypad," or "SE in basement." The device type is used as the default location for each device. Enter up to 24 characters.

Device Tamper (Report). Tells the central station (or other communicator) that a device has experienced a tamper condition. Program "yes" to enable this type of reporting.

Dial Area Code. Identifies the long distance access code (1) and the area code of the telephone number to be dialed when reporting events. The default area code is 1800, which is used for toll-free calling. Program the appropriate numbers for each communication device in turn.

Dial Attempts. How many times the system tries to call the reporting device before determining that a communication failure occurred. When a dial-tone is detected, the system lets the telephone ring for up to 45 seconds. If there is no answer, the system hangs up, waits 30 seconds, and then tries again. This process is repeated until the number of programmed dial attempts has been reached. Program 0-15 attempts, where "0" prohibits dialing.

Dial Phone Number. Identifies the telephone number to be dialed for reporting events. Program up to 16 characters (the additional characters allow you to enter extensions or other necessary codes).

Dial Prefix. Identifies the special codes that are needed to connect to an outside telephone line when placing a call. The system dials this prefix before any call it places, except when it is using a cellular connection. The standard characters are: 1) access an outside line from a PBX system (8 or 9); 2) pause for five seconds (,); and 3) wait for a dial tone (W). This topic is located in the **Advanced | System |** menu and is global to all communicators. Program the appropriate numbers or codes; the prefix must be no more than eight characters in length.

Dialer Delay Enable. Directs the system to wait for the specified amount of time before reporting an alarm on that particular zone. (This topic is found in View/Edit Zone.) Program "yes" to require the system to wait before reporting the alarm condition. **Note:** dialer delays are ignored when there is a line cut condition and the system is communicating through a backup cellular link.

Dialer Delay Time. The number of seconds that must pass after an alarm occurs before an alarm report is sent to the central station. (This topic is found in View/Edit Account.) This gives the user time to cancel the alarm without an alarm report being sent. Program a delay of 0-255 seconds.

Display Time. Instructs the Keypad to display the current time in its numeric display at times when the Keypad is otherwise idle. The time of day is displayed in the upper left-hand corner. Program "yes" to display the time.

Double Dispatch. Requires the user to press the emergency keys (Fire, Medical, and Panic) twice within a three-second period to trigger a soft zone alarm. Program "yes" to require the key to be pressed twice before an alarm is sent.

Duress User Code. The user code that triggers a duress alarm. Entering the duress code (User 12) causes a silent alarm to be sent to the central station, but the system appears to operate normally (arm or disarm). Program a code of your choice.

---- E ----

Entry Delay Time. The amount of time the user has, after faulting the zone, to reach the Keypad and enter a user code. Each entry/exit, forced exit, and follower delay zone can have its own delay time. Program a delay of 0-250 seconds for that particular zone.

Entry Tone Enable. Causes the Keypad to sound a steady tone during the entry delay. Program "yes" to enable this feature for the Keypad in question.

Exit Delay Time. The amount of time the user has to leave the premises after starting the arming sequence. *Exit Delays may be assigned to individual Keypads and are programmed in the Keypad section.* All Keypads can be assigned the same Exit

Delay using the Standard Programming Menu. Program a delay of 1-250 seconds.

Exit Tone Enable. Causes the Keypad to beep during the exit delay. This may be disabled at the Keypad. Program "yes" to enable this tone for the Keypad in question.

Expiration Date. The date that the system automatically reverts to Local Fire mode. Reporting is discontinued and only local fires alarms are announced. Program the date of your choice. To prevent the system from reverting, program a date far in the future, such as the default value 09/09/9999.

---- F ----

Fire Alarm (Report). Tells the central station (or other communicator) that an alarm has occurred on a fire zone or that the emergency fire key has been pressed. Program "yes" to enable this type of reporting.

Fire Cutoff Minutes. How many minutes the bell/siren outputs sounds following a fire alarm. Program a time of 0-255 minutes, where 0 latches the sounder.

Fire Pattern. The cadence that annunciates alarms on fire zones. There are seven output patterns available for each alarm type; Temporal Code 3 is used for fire alarms, including the Emergency Fire Key. The cadence format selected would depend upon the country where the system is installed. Both US and Canadian versions of Temporal Code 3 are available. Choose the desired cadence from the list of options.

Fire Trouble (Report). Tells the central station (or other communicator) that a trouble condition exists on a fire zone. Program "yes" to enable this type of reporting.

Firmware Version. See Version (Firmware).

FOB Panic is Medical. Triggers a medical emergency when the system receives a panic signal from the Keychain Remote. If disabled, a police emergency is signaled instead. Program "yes" to set the panic to medical emergency, and "no" to leave it as a police emergency.

---- G ----

Gas Alarm (Report). Tells the central station (or other communicator) that an alarm has occurred on a CO/Gas zone or that the emergency CO/Gas key has been pressed. Program "yes" to enable this type of reporting.

Gas Cutoff Minutes. How many minutes the bell/siren outputs sounds following a CO/Gas alarm. Program a time of 0-255 minutes, where 0 latches the sounder.

Gas Pattern. The cadence that annunciates alarms on CO/Gas zones. There are seven output patterns available for each alarm type. The cadence format selected would depend upon the country where the system is installed. Choose the desired cadence from the list of options.

GE or Grid Extender. A Grid Extender is a device such as a Keypad, Signal Extender, or Programmer. All of these devices can join the grid network in the customer's home or small office.

---- H ----

Host Check-In (User 9). The user code that allows the customer to initiate a call to the Imagine. After the call is connected, the code is changed to another random code that is stored in the Imagine database. The new code is given to the customer by a Customer Care operator when needed.

----I ----

Installer Login (Report). Tells the central station (or other communicator) that the system has been placed in programming mode. Program "yes" to enable this type of reporting.

Installer Name. Describes the installer in additional detail for easier identification. Enter up to 24 letters or numbers.

---- K ----

Keypad #. The number automatically assigned to the system Keypad when you select the Learn Devices option from the Home Menu.

Keypad Name. Describes the Keypad in additional detail for easier identification. Enter up to 24 letters or numbers.

---- L ----

Latching Chime. Causes the chime feature to be temporarily suspended when the system is armed, then reinstated when the system is disarmed. The suspension occurs regardless of which arming mode the customer chooses. Program "yes" to configure the chime to be automatically reinstated.

Line Cut Monitor Enable. Instructs the system to monitor the telephone line for open conditions (line cuts). Program "yes" to detect line cuts.

Long Dist Access. An extension of the dial string used to automatically dial a long distance access code when a phone line is configured for long distance blocking.

Low Battery (Report). Tells the central station (or other communicator) that the system's standby battery has dropped below a pre-defined level, generally around 3.1 VDC. Program "yes" to enable this type of reporting. (The Low Battery Report topic in the View/Edit System menu must also be enabled.)

Low Battery Report Enable. A global option that allows Low Battery reporting to the central station (or other communicator) to be turned on or off without programming individual Comm devices. Program "yes" to enable this reporting.

---- M ----

Master Code. The code that is required to add or change the user codes of auxiliary users (Users 1 - 8). The master user code (User 13) can be changed by customer only if the Master Code Reprogram Enable topic is enabled.

Medical Alarm (Report). Tells the central station (or other communicator) that medical alarm has occurred. The alarm can be triggered by a medical pendant or by pressing the emergency medical key. Program "yes" to enable this type of reporting.

Medical Pattern. The cadence that annunciates an alarm condition on a medical zone or the emergency medical soft zone. The normal medical cadence is two seconds on and two seconds off. Choose the desired cadence from the list of options.

Medical Cutoff Minutes. How many minutes the bell/siren output sounds following a medical alarm. Program a time of 0-255 minutes, where 0 latches the sounder.

Medical Trouble (Report). Tells the central station (or other communicator) that a trouble condition exists on a medical zone. Program "yes" to enable this type of reporting.

Mode (Account). Indicates whether the system reports all categories of system events, or only those specified. The topic's options include: 1) normal (reporting all event categories); 2) local system (no reporting, fire and burglary alarms annunciated locally); and 3) local fire (no reporting, only fire alarms annunciated locally, other zones disabled). Choose the desired option from the displayed list.

Motion Bypass Enable. Instructs the system to automatically bypass the zone in question when the system is armed with motions off. The zone returns to normal when the system is disarmed. Program "yes" to bypass the zone under these circumstances.

---- O ----

Open/Close Reports (Standard Menu). When enabled, the system will send opening and closing reports for all active users to the central station. Program "yes" to send these reports. **Note:** by default, opening and closing reports are not enabled for User 13 (the master user).

Open/Close Reports (User Privilege). Determines whether the system sends opening and closing reports for the specified user. The reports are sent to all communicators for which the reports are enabled. See also **Opening Reports** and **Closing Reports.** Program "yes" to send the reports for this user. **Note**: by default, opening and closing reports are not enabled for User 13 (the master user).

Opening Reports (Report). Tells the central station (or other communicator) that the system has been disarmed. This topic enables reporting to the selected communicator. Program "yes" to enable this type of reporting. See also Open/Close Reports (User Privilege) to program this type of reporting for specific users.

---- P ----

Panic Alarm (Report). Tells the central station (or other communicator) that a panic alarm has occurred. The alarm can be triggered by either an assault zone or an emergency key. Program "yes" to enable this type of reporting.

Panic Pattern. The cadence that annunciates an assault or duress alarm. Although panic alarms are reported, they are generally not annunciated locally; thus, the default value for this cadence type is silent. Choose the desired cadence from the list of options.

Panic Cutoff Minutes. How many minutes the bell or siren output sounds following a panic alarm. Program a time of 0-255 minutes, where 0 latches the sounder.

Panic Trouble (Report). Tells the central station (or other communicator) that a trouble condition exists on a panic or an assault zone.

Power Fail Delay. The number of minutes the AC power must be out before an AC Fail report is sent to the central station. Program a time of 0-255 minutes, where 0 sends the report immediately.

Program Error (Report). Tells the central station (or other communicator) that a program error occurred. The following conditions are considered program errors: 1) power-on reset; 2) Watchdog reset; 3) zone status overflow. Program "yes" to enable this type of reporting.

---- Q ----

Quick Arm Enable. Allows the system to be armed using the **[ON]** key without a user code entry. Program "yes" to allow codeless arming.

---- R ----

Report Alarm Receiver. Instructs the system to report events on this zone to Communicator 1. However, the event is reported only if the event type has been specified in the Communicator Menu. Example: If zone 1 reports a burglar alarm to communicator 1 (Report Alarm Receiver), but communicator 1 is configured to report fire alarms only, the report is not sent. (Similarly, **Report Comm 2** sends the report to Communicator 2, **Report Comm 3** to Communicator 3, etc., through **Report Comm 4**.) Program "yes" to allow the system to report zone events to the specified communicator.

Restore Minutes. The number of minutes a zone must remain restored (stable without faulting) following an alarm before additional alarms are recognized and reported. This is a global setting that applies to all of the system's zones, including fire and soft zones. Entering a valid user code (disarming the system) clears the Restore Minutes timer. Program 0-255 minutes, where 0 allows the system to recognize a new alarm instantly.

Restore Report Enable. Instructs the system to send a zone restoral report to the central station after an alarm on the zone. If the Restore Minutes Timer is set, the zone must remain restored for that time before the report is sent. This topic also applies to Trouble Reports. By default, Restoral Reports are not enabled, Program "yes" to enable restoral reports to be sent. **Note:** If an alarm is canceled before the restoral report is sent, the restoral report is not sent.

Ring Back. Tells the system to confirm the arming of the system by sounding a one-second blast on the bell and siren outputs at the end of the exit delay. Program "yes" to enable this feature.

Ring Count. The number of times the telephone rings before the system answers an incoming call. Program 0-15 rings, where 0 prevents the system from answering the telephone.

RSSI. The RSSI is the Received Signal Strength Indication showing how strongly any GE is receiving the wireless signal from the Master.

Run Away Threshold. Defines the number of alarms required within any armed period that will trigger the system to automatically place a check-in call to Imagine. This permits central station personnel the opportunity to disable the offending zone and/or system.

---- S ----

Select Comm. This menu item is displayed when the Comm Menu is initially selected. It allows you to select and then modify a communicator's configuration. It is not a programmable topic.

47

Select User. This menu item is displayed when the User Menu is initially selected. It allows you to select and then modify a user's configuration. It is not a programmable topic.

Signal Extender. The Signal Extender is a wall mounted Grid Extender that expands coverage of the grid network in the customer's home or small office. The Signal Extender can receive signals from other Grid Extenders and Sensors. The Signal Extender can also be connected to a telephone line.

Silent Alarm (Report). Tells the central station (or other communicator) that a silent alarm has occurred. This alarm could be an alarm on a Silent Assault zone, a Duress report, or a panic alarm from a Keychain Remote. Program "yes" to enable this type of reporting.

Silent Trouble. Tells the central station (or other communicator) that a trouble condition exists on a Silent Assault zone. A corresponding restoral report will be sent when the zone restores. Program "yes" to enable this type of reporting.

Special Bypass Code. When entered while the system is armed, this code (User 11) instructs the system to bypass any special bypass zones. When the code is entered a second time, the bypass on these zones is removed. The code can silence alarms on special bypass zones only. Program a code of your choice.

Special Bypass Enable. Instructs the system to bypass this zone when the special bypass code is entered while the system is armed. All other zones remain armed. Program "yes" to bypass this zone under these circumstances.

Swap */# keys. Prevents the improper operation of the TCM in those cases where the customer's answering machine responds to the [*] [*] [*] connecting command. If this topic is enabled, the customer presses the [#] key instead of the [*] key when accessing the TCM. Once the TCM has been accessed, however, the use of the [*] key is the same regardless of how the topic is programmed. Program "yes" to require the user to press the [#] key instead of the [*] key when connecting to the TCM.

---- T ----

Test Report Enable. Instructs the system to send periodic test reports to the central station and all other comms that have the Comm Test Report enabled. The Test Report Interval topic specifies how frequently reports are sent. Program "yes" to enable test reports to be sent.

Test Report Interval. The number of hours between the transmission of test reports. (For the reports to be sent, the Test Report Enable topic must be enabled.) If the **Test Report Interval** is 0, the test report is sent daily. If the Test Report Interval is less than 168 hours (one week), the test report is sent sometime within a one-hour window. If the Test Report Interval is greater than 168 hours, the report is sent at a randomly chosen time within a one- day interval. Program 0-10,000 hours (416 days).

Test Time of Day - Hours. Specifies the hour of the day in which a test report is sent to the central station. This topic is used in conjunction with the Test Time of Day - Minutes. Program 0-23 hours. Add 12 hours for p.m. times, for example: 13 is 1 PM, 14 is 2 PM, etc.

Test Time of Day - Minutes. The minutes past the hour at which time a test report is sent to the central station. (For

example, to send a test report at half-past the hour, program this topic with the number 30.) This topic is used in conjunction with **the Test Time of Day- Hours**. Program 0-59 minutes.

Trouble Report Enable. Instructs the system to send a report to the central station whenever a trouble condition is detected. By default, trouble reports are only enabled for fire zones. Program "yes" to enable trouble reports for the zone being programmed.

---- U ----

User Bypass Enable. Allows the user to manually bypass this zone. Manually bypassed zones are restored to normal when the system is disarmed. Program "yes" to allow users to manually bypass this zone.

User Code. The three- to eight-digit number that the user enters to make user-controlled changes to the system. Each user code is truncated to the number of digits programmed in the **User Code Length** topic. There are two pre-defined user codes: User 9 – Host Check-in User (876); and User 13 – Master User (123). You should change these default codes when programming the system. Program a unique code for the specified user.

User Code Length. The number of digits in a valid user code. Any additional digits entered at the Keypad are ignored; thus, a user entering a code of "1234" is truncated to "123" when the code length is set to three. Program a value between 3 and 8.

User Name. Describes the user in additional detail. Five user names have default values: User 9 (Host Check-in User), User 10 (Special Bypass User), User 11 (Duress User), and User 12 (Master User). Enter up to 24 characters.

---- V ----

Voice Mail Defeat Enable. Ensures that the Imagine software connects to the system rather than to the customer's voice mail system. The Imagine calls the system, lets the telephone ring once or twice, then hangs up and calls back again. The Imagine repeats this sequence four times within a four-minute period. The system then answers the fourth call. Program "yes" if the homeowner has voice mail.

---- W ----

Wrap Around Enable. Instructs the system to allow the user to press up to 18 keystrokes to enter a valid user code. For example, a user code of "123" would be recognized in the four-keystroke sequence "1123." If this topic is disabled, the system only accepts codes that are accurately entered within the same number of keystrokes as the user code length. Program "yes" to allow the wrap-around code entry.

---- Z ----

Zone #. The number of the zone assigned to a Sensor or Transmitter. Program 1-59.

Zone Enabled. Tells the system whether the zone is active. This applies to all zones, including the soft zones (zones 62 – 64) and the specialty zones (zones 60 and 61). Program "yes" to activate these zones.

Zone Name. Describes the zone in additional detail. Each zone type has a default name that reflects the zone function; this name can be changed to be more descriptive or to distinguish one zone from another. Enter up to 24 letters or numbers.

Zone Type. Specifies the characteristics of a zone, identifying the conditions under which a fault on the zone is interpreted as an alarm. Examples of zone types include fire, entry/exit, instant, etc. Choose from the list of available zone types, or select unconfigured to instruct the system to ignore the zone.

Appendix C: Programming Shortcuts

7.4.1 Shortcuts, Defined

A shortcut is a series of numbers that takes you directly from the Home Menu to a specific point in the Advanced Programming tree. For example, you can move from the Home Menu to the View/Edit Account menu by pressing 4-3-1. This appendix contains the shortcuts for the BHS-i100.

7.4.2 Shortcut Programming Example

This example shows you how you would use shortcut programming to change the length of the user code from three digits to four.

1. Locate the desired topic, User Code Length, in the table of topic shortcuts. The table shows the following information:

2. Topic	3. Shortcut	4. Ref number
5. User Code Length	6. 4-3-1	7. 4 of 10

37. From the Home Menu, press the digits of the shortcut (4, then 3, and then 1) in succession. This takes you to View/Edit Account. Press the **[Enter]** key to view the topics of View/Edit Account.
38. Use the arrow keys to scroll to the User Code Length topic. As the third column of the table indicates, this is the fourth item in a list of 31 topics.
39. Press the **[Enter]** key to switch from the Programmer's navigational mode to its data-entry mode.
40. Use the **[Back]** key to erase the current value, then press 4 to change the number of digits in the user code from three to four.
41. Press the **[Enter]** key to write the programming change to memory and to return to the navigational mode.
42. Press the [Home] key to return to the Home Menu. At this point, you can begin the next shortcut programming task.

7.4.3 Wildcards

Some of the shortcuts in the tables below contain wildcards, or prompts for site-specific information. A wildcard is offset from the rest of the shortcut by parentheses.

User Code is one example of a topic whose shortcut contains a wildcard. The shortcut is listed as follows:

8. Topic	9. Shortcut	10. Ref Number
11. Access Code	12. 4-4-(User #)-1	13. 2 of 3

To change the code of user 4, for example, you would do the following:
1. From the Home Menu, press 4, 4.
43. Input the user number whose code you wish to modify. In this case, you would press 4 for user number 4.
44. Press the **[Enter]** key to return to the navigational mode.
45. Press 1 (View/Edit User).
46. Use the arrow keys to scroll to the "Access Code" topic. As the third column of the table indicates, this is the second item in a list of three topics.
47. Press the **[Enter]** key to switch to data-entry mode.

48. Input the new user code
49. Press the **[Enter]** key to write the programming change to memory and return to the navigational mode.
50. Press the [Home] key to return to the Home Menu. At this point, you can begin the next shortcut programming task.

7.4.4 Primary Menu Shortcuts

The following table lists the shortcuts that take you to the View/Edit feature of the Advanced Programming menus.

2. View/Edit Menu	3. Shortcut
4. Account	5. 4-3-1
6. Communicator	7. 4-2-(select comm.)-1
8. Grid Extender	9. 4-1-1(select the device)-1
10. System	11. 4-3-3
12. User	13. 4-4-(select user)-1
14. Zone	15. 4-1-2-(select zone)-1
16. Installer	17. 4-3-1 (ref 10 of 10)
18. Fob	19. 4-1-3(select fob)-1

7.4.5 Programmable Topic Shortcuts

The following table lists the shortcuts that take you to the programmable topics of Advanced Programming.

20. Topic	21. Shortcut	22. Ref. Number
23. Account ID	24. 4-3-1	25. 1 of 10
26. Account Mode	27. 4-3-1	28. 3 of 10
29. Account Name	30. 4-3-1	31. 2 of 10
32. Alarm Cancel Enable	33. 4-3-1	34. 7 of 10
35. Alarm Output Name	36. 4-2-IDevice 0)-4	37. 1 of 14
38. Answering Machine Bypass Enable	39. 4-3-2	40. 4 of 13
41. Auxiliary Pattern	42. 4-3-4	43. 11 of 12
44. Auxiliary Cutoff Minutes	45. 4-3-4	46. 12 of 12
47. Backlight Latch	48. 4-1-1(Keypad)-1	49. 9 of 9
50. Burglary Pattern	51. 4-3-4	52. 3 of 12
53. Burglary Cutoff Minutes	54. 4-3-4	55. 4 of 12
56. Chime Enable (Keypad)	57. 4-1-1(Keypad)-1	58. 4 of 4
59. Chime Enable (Auxiliary Siren)	60. 4-1-4(Siren)-1	61. 2 of 10
62. Chime Zone Enable	63. 4-1-2-(Zone #)-1	64. 7 of 18
65. Comm 2 Backup	66. 4-3-3	67. 5 of 24

68. Comm Enable	69. 4-1	70. 4 of 16	172. Low Battery Report Enable	173. 4-3-3	174. 3 of 24
71. Comm Name	72. 4-2-(Comm #)-1	73. 1 of 37	175. Master Code Reprogram Enable	176. 4-3-1	177. 10 of 11
74. Comm Type	75. 4-2-(Comm #)-1	76. 2 of 37	178. Medical Pattern	179. 4-3-4	180. 7 of 12
77. Confirm Fob Bell	78. 4-3-1	79. 8 of 10	181. Medical Cutoff Minutes	182. 4-3-4	183. 8 of 12
80. Daylight Savings	81. 4-3-3	82. 2 of 24	184. Motion Bypass Enable	185. 4-1-2-(Zone #)-1	186. 5 of 18
83. Defer Test	84. 4-3-3	85. 14 of 24	187. Panic Pattern	188. 4-3-4	189. 5 of 12
86. Delay Display Enable	87. 4-3-3	88. 8 of 24	190. Panic Cutoff minutes	191. 4-3-4	192. 6 of 12
89. Delinquent Days	90. 4-3-3	91. 9 of 24	193. Power Fail Delay	194. 4-3-3	195. 4 of 24
92. Dial Prefix	93. 4-3-2	94. 1 of 13	196. Privileges: Open/Close Report	197. 4-4-(User #)-1	198. 3 of 3
95. Dial Area Code	96. 4-2-(Comm #)-1	97. 5 of 37	199. Quick Arm Enable	200. 4-3-1	201. 6 of 10
98. Dial Attempts	99. 4-2-(Comm #)-1	100. 4 of 37	202. Report Comm 1	203. 4-4-2-2-(zone #)-1	204. 12 of 18
101. Dial Phone Number	102. 4-2-(Comm #)-1	103. 6 of 36	205. Report Comm 2	206. 4-4-2-2-(zone #)-1	207. 13 of 18
104. Dialer Display Enable	105. 4-4-2-2-(Zone Expander)-1	106. 11 of 19	208. Report Comm 3	209. 4-4-2-2-(zone #)-1	210. 14 of 18
107. Dialer Delay Time	108. 4-3-3	109. 15 of 24	211. Report Comm 4	212. 4-4-2-2-(zone #)-1	213. 15 of 18
110. Display Time	111. 4-3-3	112. 1 of 24	214. Report Events: AC Fail	215. 4-2-(Comm #)-1	216. 29 of 37 217.
113. Double Dispatch	114. 4-3-3	115. 7 of 24	218. Report Events: Auxiliary Alarm	219. 4-2-(Comm #)-1	220. 14 of 37 221.
116. Entry Delay Time	117. 4-1-2-(Zone #)-1	118. 8 of 18	222. Report Events: Auxiliary Trouble	223. 4-2-(Comm #)-1	224. 21 of 37 225.
119. Entry Tone Enable 120. (Keypad)	121. 4-1-1(Keypad)-1	122. 6 of9	226. Report Events: Battery Fail (Load Shed)	227. 4-2-(Comm #)-1	228. 31 of 37 229.
123. Entry Tone Enable (Siren)	124. 4-1-4(Siren)-1	125. 4 of 10	230. Report Events: Burglary Alarm	231. 4-2-(Comm #)-1	232. 9 of 37 233.
126. Exit Delay Time	127. 4-1-1(Keypad)-1	128. 7 of 9	234. Report Events: Burglary Trouble	235. 4-2-(Comm #)-1	236. 16 of 37 237.
129. Exit Tone Enable 130. (Keypad)	131. 4-1-1(Keypad)-1	132. 5 of 9	238. Report Events: Cancel Alarm	239. 4-2-(Comm #)-1	240. 25 of 37 241.
133. Exit Tone Enable (Siren)	134. 4-1-4(Siren)-1	135. 3 of 10	242. Report Events: Close Delinquent	243. 4-2-(Comm #)-1	244. 34 of 37 245.
136. Expiration Date	137. 4-3-3	138. 19 of 24	246. Report Events: Closing	247. 4-2-(Comm #)-1	248. 23 of 37 249.
139. Fire Pattern	140. 4-3-4	141. 1 of 12	250. Report Events: Comm Test	251. 4-2-(Comm #)-1	252. 33 of 37 253.
142. Fire Cutoff minutes	143. 4-3-4	144. 2 of 12	254. Report Events:	255. 4-2-(Comm #)-1	256. 27 of 37 257.
145. FOB Panic is Medical	146. 4-3-1	147. 9 of 10			
148. Host Check in Weeks	149. 4-3-2	150. 12 of 13			
151. Host Phone Number	152. 4-3-2	153. 11 of 13			
154. Keypad #	155. 4-2-(Keypad)-5	156. 2 of 6			
157. GE Name	158. 4-1-1(GE)	159. 1 of 9			
160. Latch Strobe	161. 4-1-4(Siren)	162. 6 of 10			
163. Latching Chime	164. 4-3-3	165. 6 of 24			
166. Line Cut Monitor Enable	167. 4-3-2	168. 10 of 13			
169. Long Distance Access Code	170. 4-3-2	171. 2 of 13			

Device Error			346. Trigger (1-4)	347. 4-2-(Fob Receiver)-3	348. 3 of 3
258. Report Events: Device Tamper	259. 4-2-(Comm #)-1	260. 28 of 37 261.	349. Trouble Report Enable	350. 4-1-2-(Zone #)-1	351. 10 of 18
262. Report Events: Fire Alarm	263. 4-2-(Comm #)-1	264. 10 of 37 265.	352. User Bypass Enable	353. 4-1-2-(Zone #)-1	354. 4 of 18
266. Report Events: Fire Trouble	267. 4-2-(Comm #)-1	268. 17 of 37 269.	355. User Code	356. 4-4-(User #)-1	357. 2 of 3
270. Report Events: Installer Login	271. 4-2-(Comm #)-1	272. 7 of 37 273.	358. User Code Length	359. 4-3-1	360. 4 of 10
274. Report Events: Low Battery	275. 4-2-(Comm #)-1	276. 30 of 37	361. User Name	362. 4-4-(User #)-1	363. 1 of 3
277. Report Events: Medical Alarm	278. 4-2-(Comm #)-1	279. 13 of 37 280.	364. Voice Mail Defeat Enable	365. 4-3-2	366. 5 of 13
281. Report Events: Medical Trouble	282. 4-2-(Comm #)-1	283. 20 of 37 284.	367. Wrap Around Enable	368. 4-3-1	369. 5 of 10
285. Report Events: Opening	286. 4-2-(Comm #)-1	287. 24 of 37 288.	370. Zone Enable	371. 4-1-2-(Zone #)-1	372. 1 of 18
289. Report Events: Panic Alarm	290. 4-2-(Comm #)-1	291. 12 of 37 292.	373. Zone Name	374. 4-1-2-(Zone #)-1	375. 3 of 18
293. Report Events: Panic Trouble	294. 4-2-(Comm #)-1	295. 19 of 37 296.	376. Zone Type	377. 4-1-2-(Zone #)-1	378. 2 of 18
297. Report Events: Program Error	298. 4-2-(Comm #)-1	299. 8 of 37 300.			
301. Report Events: Silent Alarm	302. 4-2-(Comm #)-1	303. 15 of 37 304.			
305. Report Events: Silent Trouble	306. 4-2-(Comm #)-1	307. 22 of 37 308.			
309. Restore Minutes	310. 4-3-3	311. 18 of 24			
312. Restore Report Enable	313. 4-1-2-(Zone #)-1	314. 9 of 18			
315. Ring Back	316. 4-3-3	317. 16 of 24			
318. Ring Count	319. 4-3-2	320. 8 of 13			
321. Run Away Threshold	322. 4-3-3	323. 17 of 24			
324. Special Bypass Enable	325. 4-1-2-(Zone #)-1	326. 4 of 18			
327. Siren Enable 328. (Keypad)	329. 4-1-1(Keypad)-1	330. 8 of 9			
331. Siren Enable (Siren)	332. 4-1-4(Siren)-1	333. 5 of 10			
334. Test Report Enable	335. 4-3-3	336. 10 of 24			
337. Test Report Interval	338. 4-3-3	339. 143of 24			
340. Test Time of Day Hours	341. 4-3-3	342. 12 of 24			
343. Test Time of Day Minutes	344. 4-3-3	345. 11 of 24			

Appendix D: SIA False Alarm Reduction Features

The BHS-i100 can be set to a SIA default mode from the Home Menu by selecting Set Defaults. You will be asked to confirm that you want to reset the programming defaults, and then asked which Compliance Mode you want to use. Your options are Brinks Mode or SIA Mode (factory default). To use programming defaults that comply with the SIA Standard, select the SIA Mode.

Following are a list of SIA False Alarm Reduction features which are different than the Brinks mode, and corresponding default settings.

Swinger Trips - Defines the number of alarms that must occur on a zone before it is automatically bypassed. Only zones with Swinger Bypass Enable set to YES are swinger bypass candidates. The default setting is 1.

Automatic Swinger Reset - Enables automatic resetting of swinger bypassed zones following a continuous 1 hour interval of no new alarms. Each bypassed zone has a separate 1 hour timer for timing this operation. The default setting is NO.

Swinger Bypass Enable - A zone configuration option that enables individual zones for swinger bypass processing. The default setting is NO.

Fire Verification - A zone configuration option that enables automatic fire power cycling and re-sense in accordance with NFPA-72 fire verification requirements which, if enabled, requires two alarms on one or more fire zones within a two minute window before a fire alarm event is signaled. A fire sensor reset (fire power recycle) is performed upon the occurrence of the first fire alarm indication. If a second fire alarm is indicated within two minutes of the first then a fire alarm is signaled. The default setting is NO.

Cross Zone Seconds - Cross zoning is an alarm verification technique that requires an alarm on two zones within the Cross Zone Seconds time window before an alarm event is signaled. The default setting is 20.

Cross Zone Enable - A zone configuration option that enables individual zones for cross zone processing. The default setting is NO.

Exit Time Restart - Causes the exit timer to restart once if a door (exit/entry zone) is opened, closed, and then reopened within the initial exit delay countdown following an arming. The default setting is YES.

Automatic Motion Off - Automatically arms the system in a MOTION OFF mode if no door (exit/entry zone) was opened during the exit delay countdown. The default setting is YES.

Exit Error - Enables exit error processing if a door (entry/exit zone) is still open at the expiration of the exit delay countdown. Exit error will sound the local alarm, initiate an entry delay, and signal alarm and exit error events if the system is not disarmed by the expiration of the entry delay countdown. The default setting is YES.

Recent Closing - Enables signaling of a recent closing event that indicates an alarm occurred within five minutes of arming. The default setting is YES.

IMPORTANT ANSI/SIA INFORMATION

CAUTION! A call waiting cancel on a non call- waiting telephone line will prevent successful connection to the central station! (per IAW ANSI/SIA CP-01)