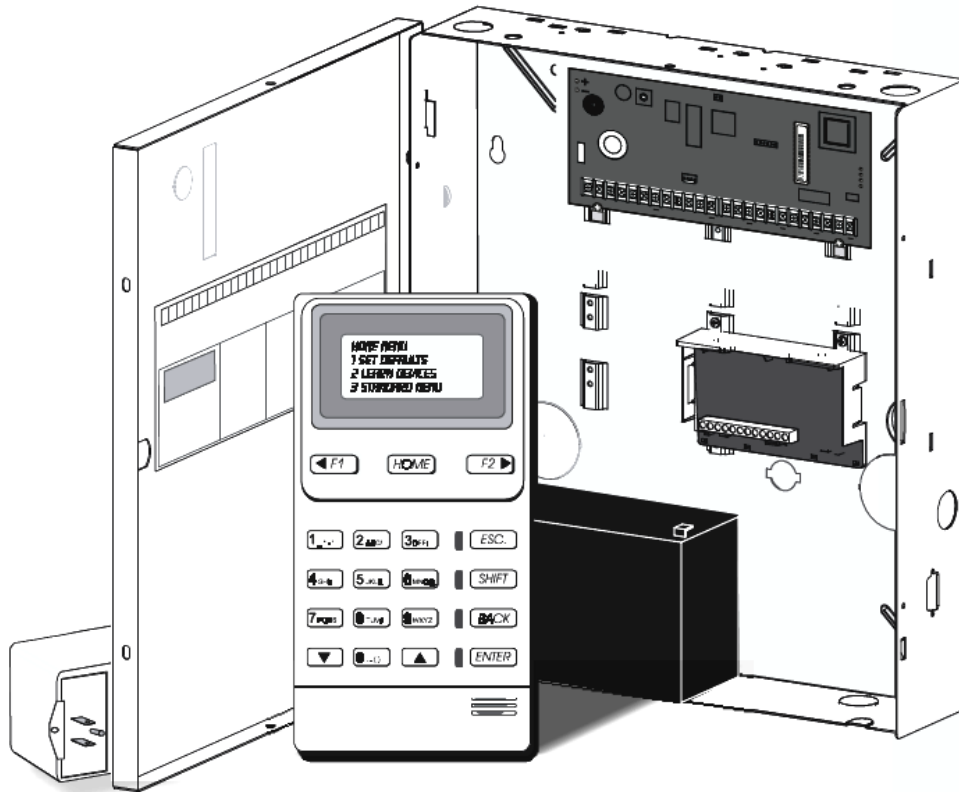


4000B



Installation and Programming Instructions

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1 Regulatory Notices

1.1 FCC Notice

1.1.1 FCC Rules Part 15

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 harmful 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 Technical Support Center 1 800 390 6236.

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 Technical Support Center or an experienced TV/Radio technician for additional suggestions.

1.1.2 FCC Rules Part 68

This equipment complies with FCC Rules, Part 68.

On the outside of this equipment is a label that contains, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. If requested, provide this information to your telephone company.

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

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all of those devices ring when your number is called. In most, but not all areas, the sum of the REN's of all devices should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should call your local telephone company to determine the maximum REN for your calling area.

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 you experience trouble with this equipment, please contact Brink's Home Security® Customer Care at 1-800-445-0872 for information on obtaining service or repairs.

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.

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

FCC Registration Number: C2D MUL-35516-AL-E
Ringer Equivalence: 0.5B

1.2 Industry Canada

NOTICE: The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements documents. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must be installed using an acceptable method of connection.

The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure, for their own protection, that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

NOTICE: The Ringer Equivalence Number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

This Class B digital apparatus Complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Contact Brink's Customer Care at 1-800-445-0872 for information on obtaining service or repairs.

IC Certification Number: 1140 10954A.

2 Mounting

Important Note

Please read and fully understand the BHS-4000B 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.

Note This section contains mounting instructions only. Product wiring information is found in Section 3.

2.1 Mount the panel

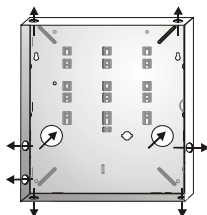
2.1.1 Choose a mounting location

Choose a mounting location that is:

- clean and dry
- accessible to both AC power and telephone service
- inaccessible to the public
- protected from excessive heat or cold and
- away from large metal objects, like heating ducts

2.1.2 Remove wiring knockouts

The BHS-4000B enclosure has nine circular wiring knockouts. These knockouts are located in the sides and back of the enclosure as shown.



Nine wiring knockouts

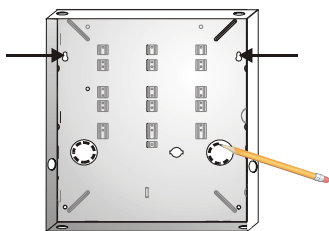
To remove a knockout, do the following:

1. While you are grounded, remove the panel's main PCB.
2. Use a tool to push the knockout away from the wall of the enclosure. Grasp the knockout with a pair of pliers and twist it loose.

2.1.3 Mount the panel enclosure: residential applications

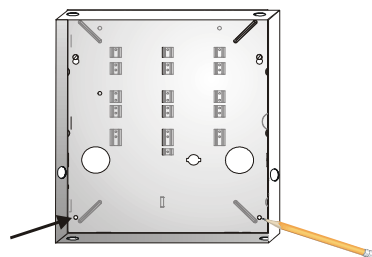
To secure the panel enclosure to the wall, do the following:

1. Using the base of the housing as a template, mark the top mounting holes and the wire-entry holes.



Mark mounting and wire-entry holes

2. Drill the top mounting holes and wire entry holes.
3. Insert two top mounting screws into the standoff holes. Do not tighten completely. (Use #10, square-drive mounting screws, not provided.)
4. Temporarily hang the housing on the top mounting screws. Mark the location of the lower mounting holes.



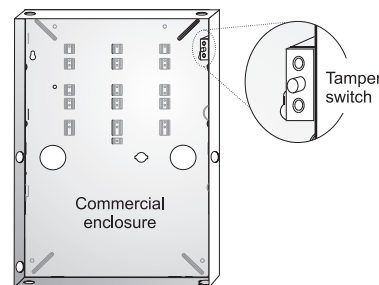
Lower mounting holes

5. Remove the housing and drill the lower mounting holes.
6. Replace the enclosure on the screws and secure it to the wall.

2.1.4 Mount the panel enclosure: commercial applications

If you are installing a system in a commercial environment, you must take the following additional steps when mounting the panel:

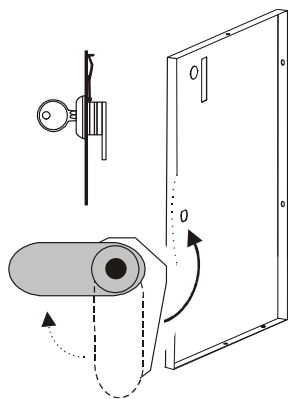
1. All wires entering the control panel shall either be brought into the panel inside the wall the panel is mounted to or inside conduit that is stubbed up into a ceiling or up to the "red iron."



Tamper switch commercial enclosure

2. Install the tamper switch if applicable. Connect the tamper switch's wiring to an input zone.

3. If applicable, remove the small round knockout on the enclosure door and install the provided key lock following the instructions provided in the commercial enclosure.

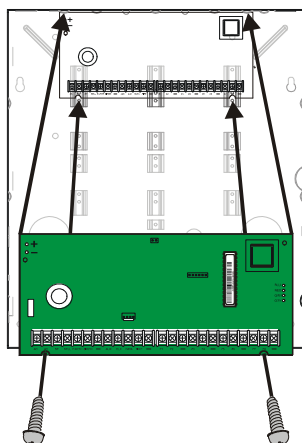


**Install door lock
(commercial installations only)**

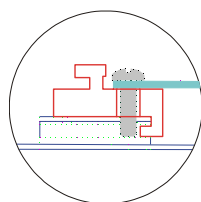
2.1.5 Install the panel's main PCB

To re-install the panel's main printed circuit board, do the following:

1. While you are grounded, place the PCB in the enclosure as shown.
2. Screw the PCB in place using #7 x 1/2" self-tapping screws and star washers (provided).
3. After mounting, affix the cover in place. Use either the #7 sheet metal screws that are provided with the enclosure or a separate lock of your choice.



Mount the PCB



Mounting clip, detail

2.2 Mount the keypad

2.2.1 Keypads supported

The BHS-4000B supports up to 16 keypads per panel. More than one keypad can be in use at one time.

2.2.2 Mount the keypad

The keypad is surface-mounted in any convenient interior location, at a height that is convenient for use.

To mount the keypad, do the following:

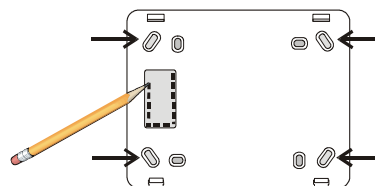
1. To open the keypad housing, insert a flat-head screwdriver into the latch slots at the base of the keypad and twist the screwdriver one-quarter turn.



Open the keypad with a screwdriver

2. Remove the backplate.
3. Holding the backplate level against the wall, mark the locations of the mounting and wire-entry holes.

Tip: avoid placing the keypad's speaker directly over the wire-entry hole in the drywall, because this can muffle the keypad's sound.



Mark the mounting and wire-entry holes

4. Remove the backplate and then drill the mounting holes and wire entry holes.
5. Secure the backplate to the wall with #8 screws, (not provided).
6. Snap the front of the keypad onto the backplate.

2.2.3 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.

2.2.4 Keypad addressing and supervision is automatic

The control panel automatically addresses the keypads during the Learn Devices procedure. (See page 32 for more information.) You do not need to program the keypad for supervision; this is also automatic.

2.3 Mount the ZEM

2.3.1 Mounting location

The Zone Expansion Module (ZEM) can be mounted either inside the BHS-4000B's enclosure or externally. The panel's enclosure can accommodate one ZEM.

When choosing a mounting location, do not exceed the maximum wiring distances shown in the table below. If you plan to connect powered sensors to the ZEM, the maximum wiring distance will be smaller.

Installation Type	Maximum Distance (m. / ft.)
UL-compliant	152 m / 500 ft.
Not UL-compliant	610 m / 2000 ft.

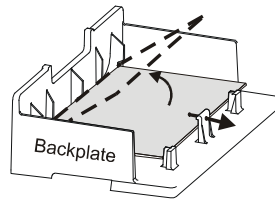
2.3.2 Mount inside the panel enclosure

To install a ZEM inside the panel enclosure, do the following:

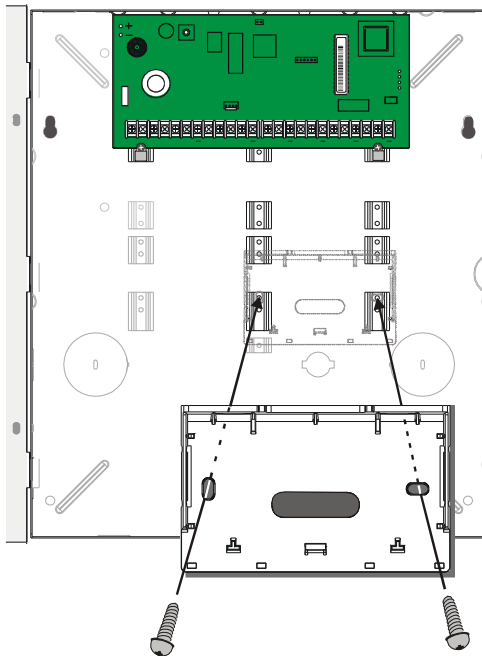
1. Open the ZEM's housing by depressing the latches with a flat-head screwdriver.

2. While you are grounded, remove the ZEM's PCB.

3. Screw the ZEM's backplate in place beneath the panel's PCB as shown using two #7 x 1/2" self-tapping screws (provided).



Remove the PCB



Screw backplate to enclosure

4. Replace the PCB on the ZEM's backplate.

2.3.3 Mount outside the panel enclosure

Additional ZEMs can be mounted in their individual housings, or in a separate enclosure. To mount an individual ZEM, do the following:

1. Choose a mounting location that is within the site's protected area.

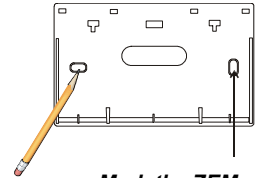
2. Open the ZEM's housing by depressing the latches with a flat-head screwdriver.

3. While you are grounded, remove the ZEM's PCB.

4. Holding the backplate level against the wall, mark the locations of the mounting holes.

5. Secure the backplate to the wall with #8 screws, not provided.

6. Replace the PCB on the ZEM's backplate.

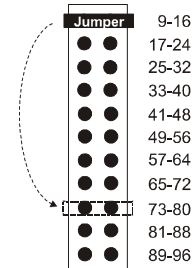


Mark the ZEM mounting holes

2.3.4 Address the ZEM

On the ZEM are 11 pairs of jumper pins, one pair for each of the maximum 11 ZEMs that can be connected to the panel. The pins are labeled with the first and last zone number of each ZEM.

A jumper is factory-installed on the first pair of pins, indicating the device is the ZEM for zones 9-16. To change the zone range of the ZEM, disconnect power to the panel, then move the jumper to the set of pins with the appropriate zone numbers.



Address ZEM before connecting

You can use the Device Menu of the handheld programmer to determine the setting of the ZEM's jumper. See the panel's installation instructions for more information.

Note

Be sure to set each ZEM's jumper to a unique zone range. If the jumpers of two or more ZEMs are in the same position, the control panel will learn only the first ZEM.

2.4 Mount the speakers and bell

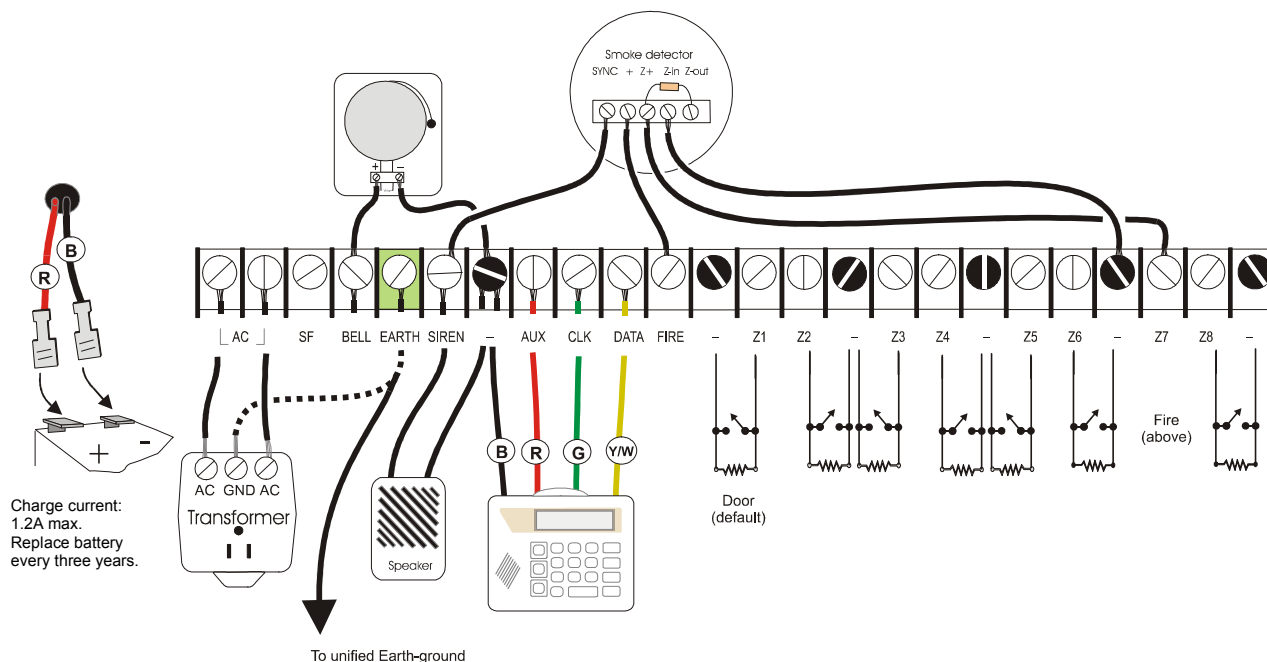
Mount the system's speaker(s) and the bell in accordance with the manufacturer's instructions.

3 Wiring

3.1 Terminals

3.1.1 Layout

The layout of the terminals of the BHS-4000B is shown below. The function of each terminal is summarized in the table.



3.1.2 Function of each terminal

The function of each terminal is summarized in the table.

Label	Description	Value	Connects to	More information
AC	AC Input	16-16.5VAC, 25 or 40 VA	Class 2 AC transformer, 120 VAC 50/60 Hz	Page 13
AC	AC Input	16-16.5VAC, 25 or 40 VA	Class 2 AC transformer, 120 VAC 50/60 Hz	
SF	Special Function Terminal	0 – 12 VDC nominal, 10 mA	Relay device	Page 9
BELL	Bell output positive	12.8 VDC	External bell	Page 13
EARTH	Earth-Ground Connection	Not applicable	Earth-Ground	Page 13
SIREN	Siren Output positive	90 dB with 8-Ohm load	Up to four 8-Ohm speakers. Total minimum impedance: 4 Ohm.	Page 12
–	Common	Not applicable	Circuit common	Page 10
AUX	Auxiliary Output Positive	1000 mA @ 13.2 V	Keypads, sensors, relays, and accessory modules.	
CLK	Keypad data bus (green wire)	RS-485: 38.4 khz	Differential keypad data bus.	
DATA	Keypad data bus (yellow/white wire)	RS-485: 38.4 khz	Differential keypad data bus.	
FIRE	4-wire smoke detector power	12.8 VDC	Power for 4-wire smoke detector	Page 9
–	Common terminal	Not applicable	Circuit common	Page 9
Z1	Zone input	0 - 12.8 VDC, 3mA max.	Zone 1 detection device	
Z2	Zone input	0 - 12.8 VDC, 3mA max.	Zone 2 detection device	
–	Common terminal	Not applicable	Circuit common	
Z3	Zone input	0 - 12.8 VDC, 3mA max.	Zone 3 detection device	
Z4	Zone input	0 - 12.8 VDC, 3mA max.	Zone 4 detection device	
–	Common terminal	Not applicable	Circuit common	
Z5	Zone input	0 - 12.8 VDC, 3mA max.	Zone 5 detection device	
Z6	Zone input	0 - 12.8 VDC, 3mA max.	Zone 6 detection device	
–	Common terminal	Not applicable	Circuit common	
Z7	Zone input	0 - 12.8 VDC, 3mA max.	Zone 7 detection device	
Z8	Zone input	0 - 12.8 VDC, 3mA max.	Zone 8 detection device	
–	Common terminal	Not applicable	Circuit common	

Note to table: All DC voltages listed are nominal values with AC power applied.

3.1.3 Terminal 3: Special Function Output

The third terminal on the BHS-4000B is the Special Function Output terminal. The terminal can be used as a Courtesy Output.

The Courtesy Output responds to the following triggers in the following ways:

Trigger	Output Response
User presses and holds the [5] key for more than three seconds.	Toggles on or off
Entry or exit delay starts	Toggles on and remains on for 60 seconds longer than the delay.
Burglary alarm	Pulses until the alarm condition ends or another trigger occurs.
Fire Alarm	Toggles on and remains on until the alarm condition ends or another trigger occurs.

3.2 Wire type

Unless otherwise specified, all wiring is done using 18 – 22 AWG (1.02 – 0.64 mm) four-conductor wire.

3.3 Wire the zones

3.3.1 Wire the burglary zones

Burglary zones circuits can have a normally-open, normally-closed, or an end-of-line resistor (EOLR) configuration. (For definitions of these circuits, see page 62.) For UL applications, however, an end-of-line configuration is required. When you are configuring an EOL circuit for a UL application, use wire that has a minimum gauge of 22 AWG, and do not use more than 1000 feet of wire per circuit.

Wire the zone's detection device(s) according to the manufacturer's instructions. Connect one wire from each zone circuit to the appropriately numbered Z terminal on the panel. Connect the other wire to the neighboring common terminal.

Zones 1 and 248-256 are pre-defined, as the table on page 31 shows. The remaining zones (2-96) are not configured.

Note The ZEM recognizes 4.7K-Ohm EOLs only. Do not use resistors with other values in ZEM circuits. Do not select other resistance values when programming ZEM zones.

3.3.2 Wire the fire zone

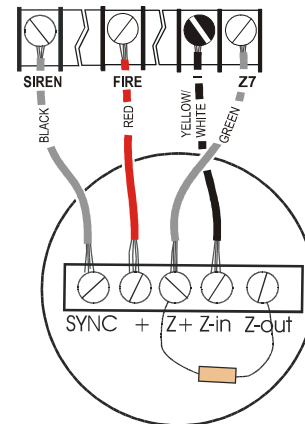
The BHS-4000B is designed for four-wire smoke/heat detectors only. Fire zones always require the EOL configuration. When you are configuring an EOL circuit for a UL application, use 14-22 AWG wire. Do not use more than 500 feet of wire in one circuit.

Smoke/heat detectors can be wired individually, or daisy-chained. Both methods are described below.

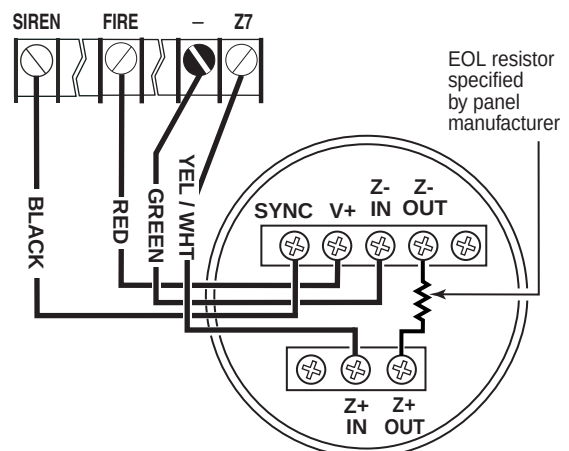
Individual wiring. To wire a single smoke/heat detector, do the following:

1. Connect the red wire from the + terminal on the smoke detector to the FIRE terminal on the panel.

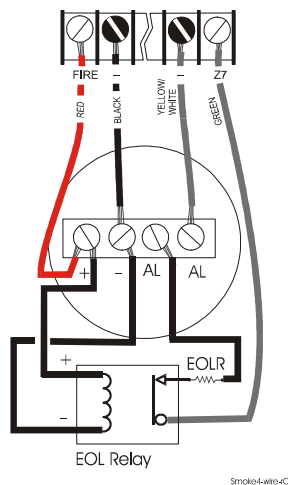
2. Connect the black wire from the SYNC terminal on the smoke detector to the SIREN terminal on the panel.
3. Connect the green wire from the Z-IN terminal on the smoke detector to the zone common terminal on the panel and connect the white or yellow wire from the Z+ or Z-IN terminal on the smoke detector to a zone terminal on the panel. (Zone 7 is shown here; however, you can select the zone of your choice.)
4. If you are using the System Sensor Model 2112ATL or 2112i3 Smoke Detector, connect the SYNC terminal to the SIREN output.



Wiring: System Sensor Model 2112ATL detector



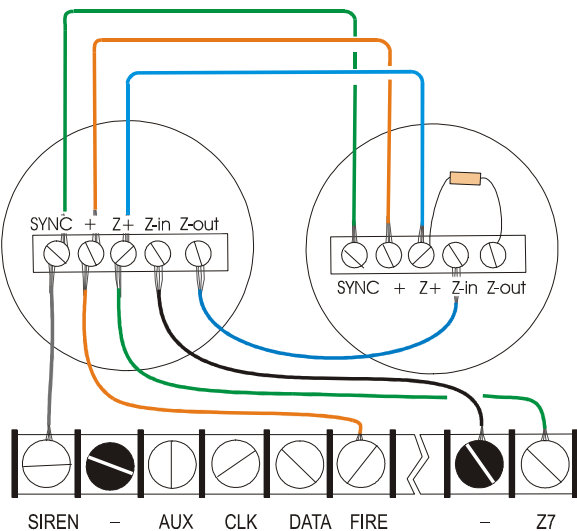
Wiring: System Sensor Model 2112i3 detector



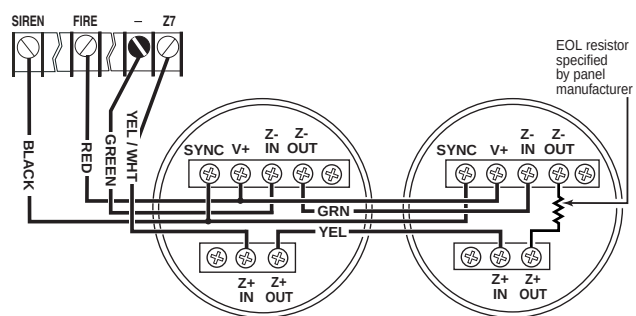
Wiring: Other UL-Listed 4-wire smoke detector using a listed EOL Relay module

Daisy-chaining. Daisy chaining should be used with caution because a damaged wire or loose connection in one detector affects all the subsequent devices in the chain. To daisy-chain two to four System Sensor 2112ATL or 2112i3 detectors, do the following:

1. Connect one detector to the panel, as shown in the preceding section.
2. Connect the SYNC terminal of the first detector to the SYNC terminal of the second.
3. Connect the + terminal of the first detector to the + terminal of the second.
4. Connect the Z+ or the Z+OUT terminal of the first smoke detector to the Z+ or the Z-IN terminal of the next smoke detector.
5. Connect the Z-OUT terminal of the first smoke detector to the Z-IN terminal of the next smoke detector.
6. Connect the Z-in terminal of the first detector to a common terminal on the panel.



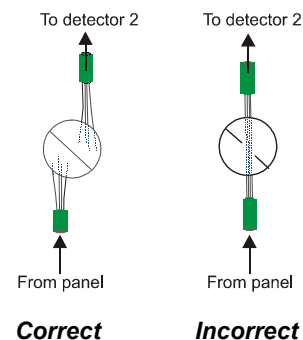
Daisy-chain two or more smoke detectors



Daisy-Chain two or more Model 2112i3 detectors

Caution

Be sure to use a separate set of wires to connect the second detector to the first. Running continuous wires can result in both detectors becoming inoperative if the first detector malfunctions.



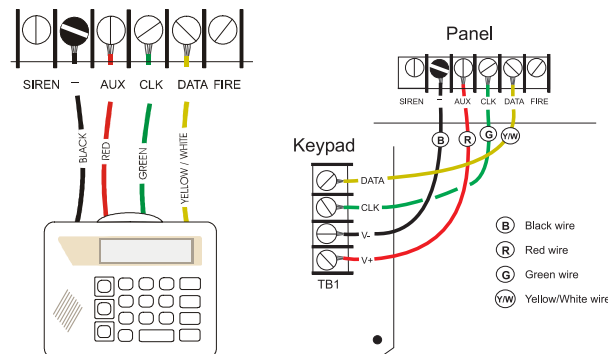
3.4 Wire the keypad

3.4.1 Connect the keypad wires to the terminals

To connect the keypad wires to the terminals, do the following:

1. Connect the black wire to - (Common).
2. Connect the red wire to AUX.
3. Connect the green wire to CLK.
4. Connect the yellow or white wire to DATA.

For UL applications, use 14- 22 AWG wire. Do not use more than 650 feet of wire per circuit.



Wire the keypad to the terminals

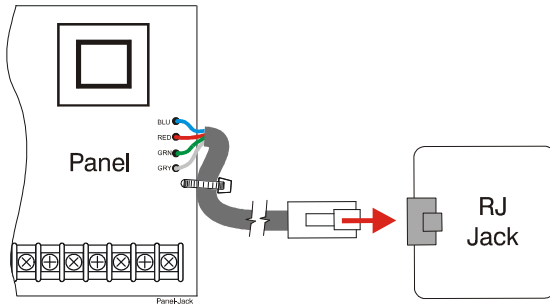
3.4.2 Wiring multiple keypads

The BHS-4000B can support up to 16 keypads, but they can have ID numbers that range from 1 - 128. These keypads can be connected in daisy-chain (parallel), individually home-run, or wired using a combination of these two methods. A combination of LED and icon keypads can be used in the same installation.

3.5 Wire the digital communicator

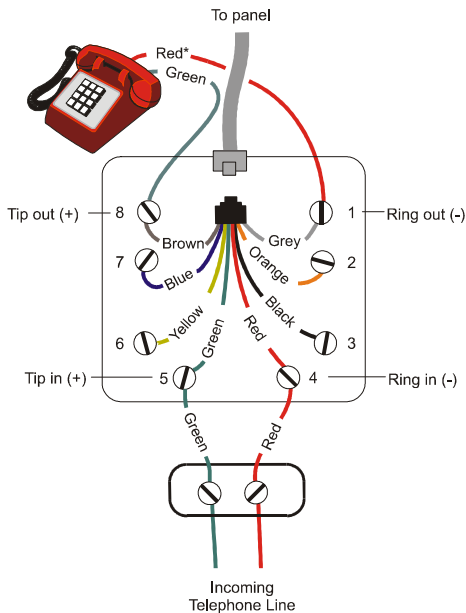
The digital communicator is integrated into the BHS-4000B control panel. To connect the panel to the house phone, do the following:

1. Locate the flat gray 4-conductor cable attached to the right-hand side of the BHS-4000B main circuit board.
2. Insert the cable's plug into an RJ31X or an RJ38X jack.



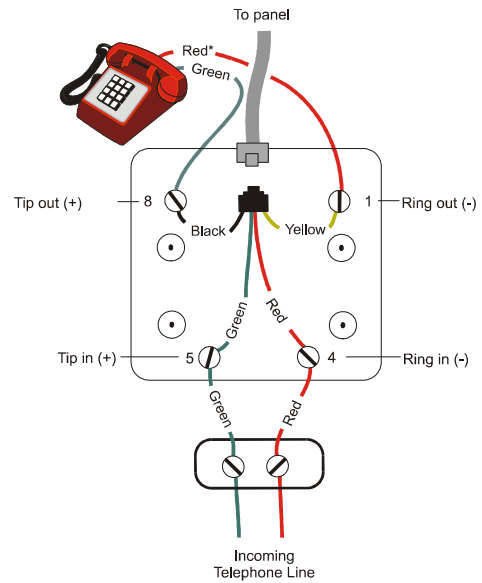
Connect panel cable to RJ Jack

2. Wire the RJ31X jack as shown:



Wire the RJ31X jack

Wire the RJ38X jack as shown:



Wire the RJ38X jack

***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).

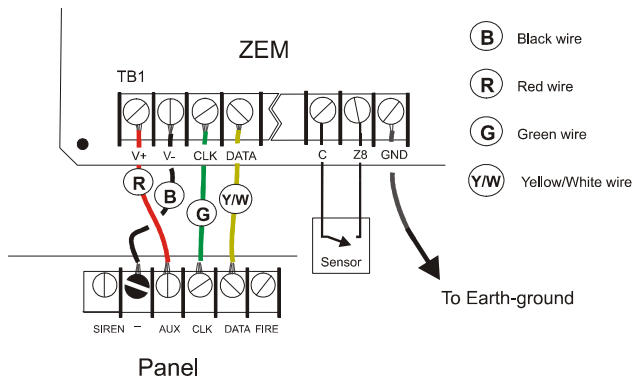
During normal operation, the telco interface's seize relay clicks a number of times before a call is placed. The relay rapidly switches state to disconnect any calls that are in progress.

3.6 Wire the ZEM

To wire the ZEM, do the following:

1. Ensure that the system's AC and DC power are off.
2. Wire the ZEM according to the table and illustration.

Connect ZEM terminal	To panel terminal
V+	AUX
V-	Common
CLK	CLK
DATA	DATA
GND	EARTH (or separate Earth-ground) (This connection is optional.)



Wire each ZEM to the control panel

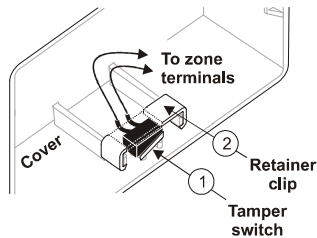
3. Wire the ZEM's zones, following the same techniques used to connect devices to the panel's eight on-board zones. See page 9 for more information. The illustration above shows a zone with a normally-open circuit; the ZEM also supports normally-closed and 4.7K EOLR circuits.
4. Ensure that the ZEM is properly addressed, as described on page 7.
5. If the ZEM is individually mounted, snap the cover into place over the backplate.

3.6.1 ZEM tamper protection

To monitor the externally-mounted ZEM for tamper conditions, use the tamper switch (PN 2-600-113-01) and the retainer clip (PN 5-532-392-00), sold separately.

To install the tamper switch, do the following:

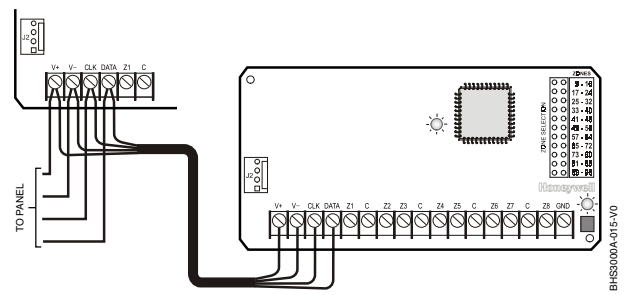
1. Place the switch on the pins at the base of the ZEM enclosure's cover, oriented as shown.
2. Snap the retainer clip in place over the switch.
3. Cut off the connector at the end of the switch's wires. Tape the wires to the enclosure cover. Connect the wires to a zone on the ZEM.
4. When programming the panel, configure the tamper zone as a normally-closed, non-bypassable zone.



3.7 Daisy chaining bus devices

To simplify the system's wiring, devices can be daisy-chained together. Use each device's V+, V-, CLK, and Data terminals for making daisy chain connections.

Daisy chaining is not recommended and extreme care should be taken when using this wiring method. If daisy chaining is used, a broken wire or loose connection in one device affects all additional devices in the chain.



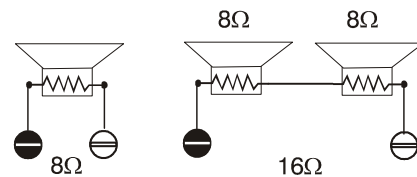
Daisy-Chaining a ZEM

3.8 Wire the speaker

The BHS-4000B can support one to four 8-Ohm speakers. When connecting the speaker, ensure that the speaker is located not more than 125 feet from the control panel, and use at least 18 AWG wire.

Note The SIREN terminal is designed to be used with 8 Ohm passive devices only. Do not connect sirens with internal drivers to this circuit.

3.8.1 Wire one or two speakers in series

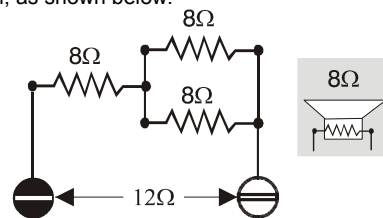


Wire one or two speakers in series

For Residential Fire Installations, use either a single speaker or two speakers in series.

3.8.2 Wire three speakers in series-parallel

When using three speakers wire them in a series-parallel combination, as shown below.

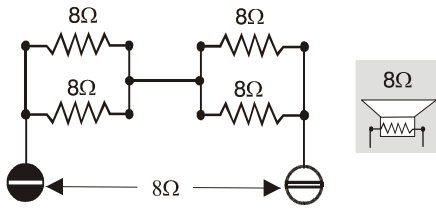


Wire three speakers in series-parallel

Use in Residential Burglary Installations only.

3.8.3 Wire four speakers in series-parallel

When using four speakers, wire them in series-parallel as shown.



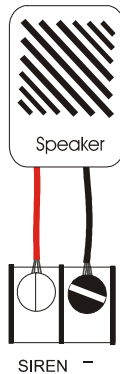
Wire four speakers in series-parallel

Use in Residential Burglary Installations only.

3.9 Connect speaker(s) to the panel

To connect the speaker(s) to the control panel, do the following:

1. Connect the positive speaker lead to SIREN (terminal 6).
2. Connect the negative speaker lead to common (terminal 7).



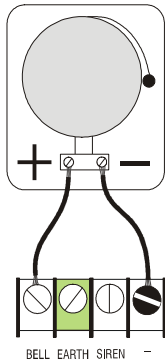
Connect speaker(s) to the control panel

3.10 Wire the bell

To wire the external bell, do the following:

1. Connect the positive (red) wire to BELL (terminal 4).
2. Connect the negative (black) wire to common (terminal 7).

For UL applications, use wire that has a minimum gauge of 18 AWG, and do not use more than more than 150 feet of wire in the circuit.



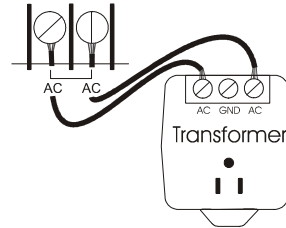
Wire the external bell

3.11 Connect to AC Power

3.11.1 Wire the transformer

Connect the power terminals of the transformer to the AC terminals as shown. The transformer models that are compatible with the BHS-4000B are listed on page 58.

For UL applications, use wire that has a minimum gauge of 18 AWG, and do not use more than 100 feet of wire in the circuit.



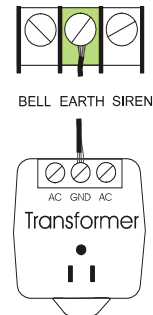
Wire the transformer

Caution Before plugging the transformer into an electrical outlet, be sure that: 1) the panel's battery leads are not in contact with the panel's PCB; and 2) the battery leads are not in contact with each other.

3.11.2 Make an Earth-ground connection

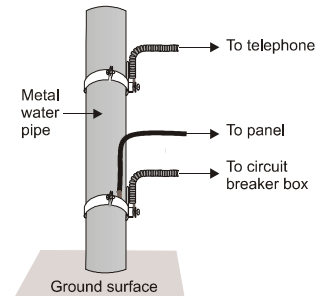
An Earth-ground connection protects the system from damage caused by power surges and lightning. For the most effective protection, a "unified Earth-ground" is recommended. A unified Earth-ground provides a common ground for the power and telephone lines, as well as the security system.

Grounded Transformer. If you are using a three-prong transformer, you can create an Earth-ground connection by connecting a 14-gauge solid copper wire between the EARTH terminal on the panel and the Ground terminal on the transformer, as shown.



Earth-ground connection: three-terminal transformer

Unified Earth-ground. If you are using a two-prong transformer, you can create an Earth-ground connection by connecting a 14-gauge solid copper wire between the EARTH terminal (terminal 5) on the panel and a buried cold-water pipe, as shown.

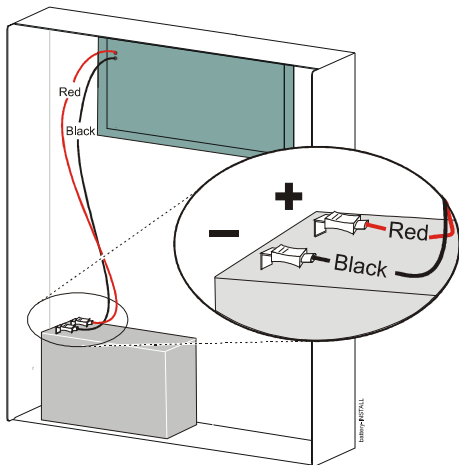


Earth-ground connection to buried cold-water pipe

3.12 Connect the backup battery

Choose a battery from the list on page 58. Connect the battery to the panel by doing the following:

1. Position the battery on the bottom of the control panel's enclosure with the terminals facing up.
2. Locate the battery leads, attached to the panel's main PCB. Each lead has a quick-connect slide connector.
3. Connect the red lead to the battery's positive terminal.
4. Connect the black lead to the battery's negative terminal.



Connect the battery

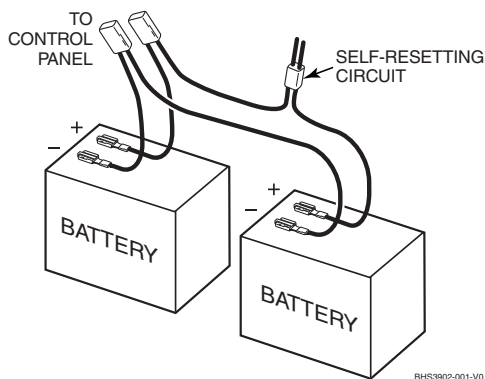
Operational States under no AC/ Battery condition

≥ 12 VDC – Normal Operation

≤ 11.9 VDC – Normal Operation – Low Battery Condition

< 9.9 VDC – Load Shed Condition

Two batteries can be connected in parallel to achieve a higher Ah rating. The BHS-3902 battery harness uses a self-resetting circuit to protect against short circuit and battery reversal.



Using the BHS-3902 Battery Harness

When using the BHS-3902 battery harness:

- Connect the lead to the panel battery leads, and observe the proper polarity when connecting the batteries.
- Both batteries must have the same Ah rating, and should have the same lot number or date code.
- Batteries should be replaced every 3-5 years
- Use a 40VA transformer when using batteries having a capacity over 7.5Ah.

3.13 Calculating system loading

This section contains the information you will need to calculate the system loading and size of back up battery required for your installation.

Current requirements. The following table lists the current requirements for the BHS-4000B control panel and each of the system's accessories. Use this table to determine the standby current (load shed or "Is" requirements for UL installations).

Product	Max Current	Qty	Total
BHS-4000B Control Panel	110 mA	1	110 mA
BHS-3101 Icon Keypad or BHS-3102 Irda Keypad	55 mA 80 mA		
BHS-3111 LED Keypad or BHS-3112 Irda Keypad	55 mA 80 mA		
S3201 Zone Expander Module	60 mA		
S3210 Keyfob Receiver	55 mA		
DT-720 Motion Sensor	25 mA		
FG-1515 Glassbreak Detector	15 mA		
240-COe Carbon Monoxide Detector	8 mA		
BHS-3250 Receiver	135 mA		
BHS-3230 Commercial ZEM	45 mA		
BHS-3420 Barran Reporting Module	650 mA		
BHS-3440 GSM Reporting Module	500 mA		
BHS-3460 Internet Reporting Module	100 mA		
Aux output on BHS-3250			
2350-SUP Bell Sup. Module	15 mA		
(Sensors) Auxiliary Power + Aux out on BHS-3250			
Fire Power (2mA per 2112ATL or 2112i3)			
Active Zones (normally closed)	3 mA (each)		
Active Zones (EOL)	1.5 mA (each)		
Total Is			

Backup power requirements. The table below shows the backup power required by the system's components during an alarm. It also shows the total alarm current (Ia).

Product	Alarm	Total
Control Panel and Accessories	From above	
2112ATL or 2112i3 Smoke Detector	30 mA	
240-COe Carbon Monoxide Detector	75 mA	
Bell	*	
4 Ohm Siren Load	260 mA	
8 – 12 Ohm Siren Load	170 mA	
16 Ohm Siren Load	125 mA	
Total for Ia		

*The current requirements for a bell vary. Refer to the documentation that comes with the sensor for the actual current requirements.

The battery's Ah rating must be reduced by 10% which allows for the depletion of the battery capacity with age.

To determine the total backup battery Ah requirements of your system, use the following formula:

$$Ah = [(Is \times \text{Standby hours}) + (Ia \times \text{Alarm hours})] \times 1.10$$

Note: Is and Ia should be in Amps (Example: 170mA = 0.17A)

The Alarm hours are calculated as follows: Alarm Hours = Alarm minutes/60. For example, 4 – 5 minutes = 0.083 hour; 10 minutes = 0.167 hour; and 15 minutes = 0.25 hour.

3.14 Output current limits

The following table shows the voltage range and current limits for each output terminal of the BHS-4000B.

Function	Terminal	Voltage Range	Current Limit	Combined Current	Comments
Bell/Strobe	Bell	9-14	1 A	1.2 A**	
Speaker	Siren	N/A	N/A		4 - 12 Ohm
Keypad and accessories	Aux	9-14	1 A		
4-wire smoke detector	Fire	9-14	1 A		

****Note to table:** The total combined current shown is for the 40 VA transformer. If you are using a 25 VA transformer, the total is reduced to 1.0 A. The maximum current draw needs to include the control panel current.

4 Keyfobs and Keyfob Receiver

4.1 Keyfob receiver

Note: For setting up 5804E Keyfobs, see Section 5, BHS-3250 Receiver and 5800 Series Transmitters.

4.1.1 Choose a mounting location

Mount the receiver where the keyfob is most likely to be used. This might be the customer's garage, assuming that it is a protected area. For best results, do not exceed the receiver's maximum range of 75 feet. **Do not mount the receiver inside the control panel's enclosure.**

You may mount the receiver up to 300 feet from the panel if you are using 22 AWG wire or up to 800 feet away if you are using 18 AWG wire. Because site conditions can affect signal reception, always test the receiver before permanently mounting it.

The BHS-4000B can support two keyfob receivers.

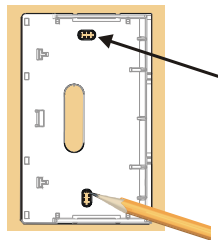
Caution

Do not alter the length or shape of the keyfob receiver's antenna. Connecting a "range extender" or repositioning the antenna can significantly reduce signal reception.

4.1.2 Mount the keyfob receiver

To mount the receiver, do the following:

1. Open the receiver's housing by depressing the latches with a flat-head screwdriver.
2. While you are grounded, remove the receiver's PCB. Avoid touching the PCB's antenna; doing so could cause it to move, which would compromise the device's reception.
3. Orient the backplate vertically, with the narrower side of the housing parallel to the ceiling, as shown. Holding the backplate level against the wall, mark the locations of the mounting holes.
4. Secure the backplate to the wall with the two #8 screws provided.
5. While you are grounded, replace the PCB on the mounting bracket.
6. Verify that the antenna is parallel to the PCB; if it is not, **gently** press it back into place.



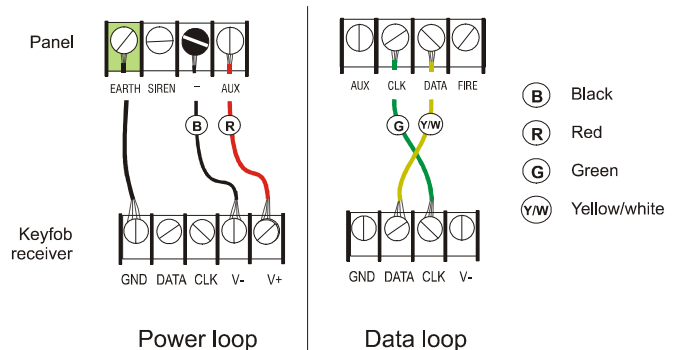
Orient the housing vertically, then mark the mounting holes

4.1.3 Wire the keyfob receiver

To wire the receiver, do the following:

1. If applicable, disconnect the system's AC and DC power.
2. Wire the receiver according to the table and illustration.

Receiver Terminal	Wire Color	Control Panel Terminal
V+	Red	AUX
V-	Black	Common
CLK	Green	CLK
DATA	Yellow or White	DATA
GND	Black	EARTH (optional)



Wire the receiver to the panel

4.1.4 Connect optional relays 1 and 2

The receiver has two 24 V AC/DC, 0.5 A reed relays. Wire the receiver to the relay device in the same manner that you would connect a normally-open switch.

Relay 1 uses the R1 terminals, while Relay 2 uses the R2 terminals. See Appendix B for more information about the connection and programming of the receiver's relays.

4.1.5 Program the receiver

To program the receiver, follow the instructions below. Complete information about system programming is provided in Section 9.

1. **Learn the receiver.** In Programming Mode, select **Learn Devices** (Option 2 of the Home Menu). Wait for the panel to identify and number the system's devices.
2. **Create the users.** Select **Standard Programming | User Codes |**. Create a user for each keyfob.
3. **Learn the keyfobs.** Select **Standard Programming | Learn Fob |**. The programmer displays the first available user code with which a keyfob can be associated. When prompted, press any button on the keyfob twice within 30 seconds. Repeat Step 3 for the remaining keyfobs. You may install no more than six keyfobs per panel.
4. **Select keyfob's panic type.** By default, a panic alarm from any of the system's keyfobs is interpreted as a police emergency. To change this to a medical emergency, select **Advanced Programming | Account | Vw/Edt Acnt | FOB is Medical**, and toggle the setting to "yes."

5. **Program the relays.** Relay 1 uses the R1 terminals, while Relay 2 uses the R2 terminals. By default, Relay 1 closes for one second when the keyfob's white Door button (button 4) is pressed. Relay 2 closes for two seconds when the system is armed or disarmed by any means. If you wish to assign the relays a different function, you can do so in Advanced Programming. See Appendix B for more information.

The receiver is automatically supervised.

4.1.6 Programming a second keyfob receiver

The BHS-4000B can support multiple keyfob receivers. If both receivers are installed at the time the system is programmed, the panel automatically synchronizes the receiver's programming. If a receiver is added to the system, or a defective receiver is replaced, the panel updates the new receiver's programming during installation.

4.1.7 Test installation and verify communication

Test the installation to verify that the keyfobs' signals are received and interpreted properly.

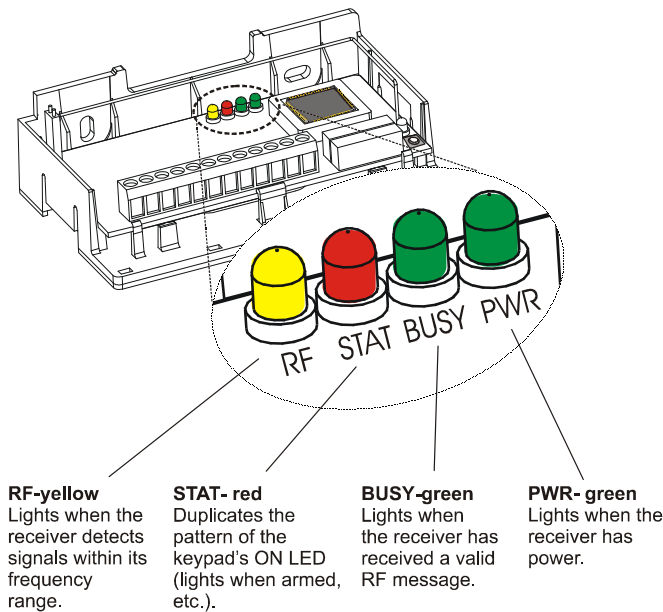
The keyfob receiver has a Service LED that indicates whether the device is communicating with the panel. The LED is located above the Service Button in the lower right-hand corner of the receiver.

During normal operation, the LED blinks to indicate whether the receiver is configured, and whether the panel is polling. See page 52 for more information.

The Service LED also blinks the receiver's ID number when you press the Service Button. See page 53 for more information.

4.1.8 Keyfob Receiver LEDs

There are four LEDs near the keyfob receiver's microchip. As the illustration shows, these LEDs indicate whether the receiver is configured and whether the panel is polling.



Keyfob Receiver LEDs

You may notice that the yellow RF LED flickers continuously. This is common in sites with high levels of background noise.

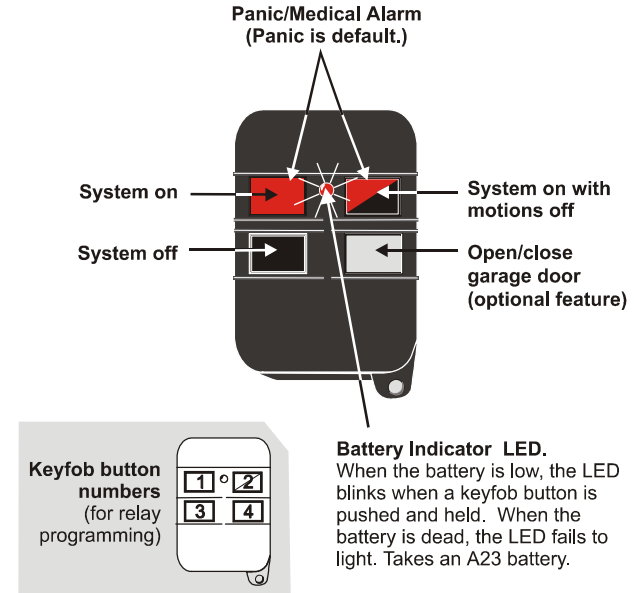
4.1.9 Cover the receiver

When you have finished wiring the receiver, snap the receiver's cover into place over the backplate.

4.2 Keyfob use

The illustration below shows the functions of the keyfob's four buttons. It also explains the significance of the keyfob's LED.

The system's default programming does not require the user to press and hold a keyfob button before a command is sent.



Functions of the keyfob's buttons

Note: The button numbers shown in this manual, rather than the loop number shown in the 5804E instructions, should be used when entering button numbers for relay programming.

Note: Pressing two buttons at the same time provides additional function triggers for relay programming. Below are the possible combinations:

- Pressing 1 and 3 at the same time = 5
- Pressing 1 and 4 at the same time = 6
- Pressing 3 and 4 at the same time = 7
- Pressing 2 and 3 at the same time = 8
- Pressing 2 and 4 at the same time = 9.

5 BHS-3250 Receiver and 5800 Series Transmitters

5.1 BHS-3250 receiver

Note: For complete wiring and programming information, refer to BHS-3250 Installation Instructions, P/N K0982.

5.1.1 Choose a mounting location

Mount the receiver so that it is centrally located to provide adequate range for the desired applications – the nominal range is 200 feet (60m) for fixed transmitters and somewhat less for keyfob transmitters. **Do not install device in an area subject to environmental extremes below 32°F/0°C or above 122°F/50°C.**

To avoid a reduction in range, do not mount the receiver within 3 feet (1m) of the panel. You may mount the receiver up to 220 feet (67m) from the panel if you are using 22 AWG wire or up to 550 feet (168m) away if you are using 18 AWG wire. **Because site conditions can affect signal reception, always test the receiver before permanently mounting it.**

5.1.2 Mount the BHS-3250 Receiver

To mount the receiver, do the following:

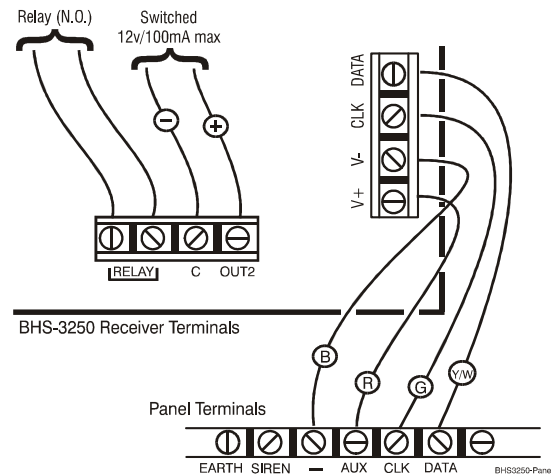
1. Remove the receiver's cover by inserting and twisting a flathead screwdriver blade in the slot at the center of the cover's lower edge.
2. If concealed wiring is to be used for the receiver, route it through the rectangular opening at the rear of the base before mounting. (For surface wiring entry, a thin breakaway area is provided along the base's right edge.)
3. Mount the receiver in the selected location. For greatest security, use all four mounting holes (two keyslot holes and two round holes) provided in the plastic base.
4. Install the antennas in the right-hand terminals of the two terminal blocks at the upper edge of the circuit board, one into each block's right-hand terminal, and tighten the screws to secure them. **Avoid mounting the receiver antennas against a metal surface.**

5.1.3 Wire the BHS-3250 Receiver

To wire the receiver, do the following:

1. Disconnect the system's AC and DC power.
2. Wire the receiver according to the table and illustrations.

Receiver Terminal	Wire Color	Panel Terminal
V+	Red	AUX
V-	Black	- (common)
CLK	Green	CLK
DATA	Yellow or white	DATA



Wire the receiver to the panel

5.1.4 Wire Relay and Switched 12V/100mA Output

The receiver has a 24 V, 0.5 A (form A) reed relay, and a transistor switched 12V/100mA output, for control of external devices.

Wire the relay terminals in the same manner that you would connect a normally-open switch. Wire the 12V/100mA switched output as required; OUT2 is the +12V output and C is the return.

5.1.5 Program the BHS-3250 Receiver

To program the receiver, follow the instructions below. Complete system programming information is provided in Section 9.

1. **Install the receiver and wireless devices.** Install devices as described in the panel's installation instructions and the transmitter's installation instructions.
2. **Learn the receiver.** In Programming Mode, select **Learn Devices** (Option 2 of the Home Menu). Wait for the panel to identify and number the system's devices. Verify the device communication (see Section 5.1.7).
3. **Enroll the transmitters.** Select **Standard Programming | Enroll Xmtrs |**. The programmer prompts you to select the transmitter device type, serial number, RF input (where applicable), and a zone number. To complete the enrollment, you will be asked to trigger the transmitter. For detailed instructions on enrolling transmitters, refer to Menu Item F in Section 9.6.3.

Notes:

- The receiver can support up to 96 transmitters.
 - The RF ACTIVITY LED located on the receiver's circuit board should be used as an indicator of strong local RF interference. If this LED is continuously illuminated, the receiver should be relocated.
4. **Enter Installer Test Mode to confirm proper operation of all devices.** Refer to Section 10 System testing and maintenance.

5.1.6 Programming additional receivers

The BHS-4000B can support up to four (4) BHS-3250 receivers. If the receivers are installed at the time the system is programmed, the panel automatically synchronizes the receiver's programming. If a receiver is added, or a defective receiver is replaced, the panel updates the new receiver's programming during installation.

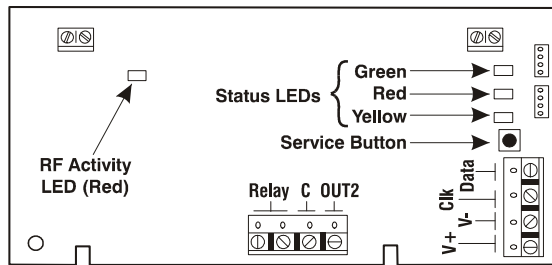
5.1.7 Test installation and verify communication

Test the installation to verify that the signals are received and interpreted properly.

The receiver has a Service LED that indicates whether the device is communicating with the panel. The LED is located above the Service Button in the lower right-hand corner of the receiver. For more information, refer to the System Information section on page 52.

5.1.8 Receiver LEDs

There are four LEDs on the receiver's printed circuit board,



LED	Function	Behavior
Yellow	Service LED	Indicates panel status & communication. (See section 11.2.1)
Green	RF Message	Flashes when a valid RF message is received.
Red	Panel Comm	Indicates decoded message was sent to the panel.
Red (left side)	RF Activity	Flickers any time RF activity is detected. Useful as an interference monitor

5.1.9 Replace the receiver cover

When you have finished wiring the receiver, snap the receiver's cover back into place.

5.2 About 5800 Series Transmitters

Each BHS-3250 receiver supports up to 96 5800 series transmitters.

- 5800LST Smoke Detector
- 5853 Glassbreak Detector
- 5804E Keyfob*
- 5802 Panic Transmitter*
- 5816 Door/Window Transmitters

*Not for UL installations.

5.2.1 Supervision

Supervised 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 a the specified supervision period, the icon keypad will display "TROUBLE" along with the transmitter number. On LED keypads, the "Trouble" light is illuminated to identify the transmitter.

5.2.2 Battery Life Indication

Batteries in wireless transmitters may last from 4 to 7 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.

On icon keypads, a low battery condition is noted when the display shows "LOW BAT"; on an LED keypad, the "Trouble" light illuminates to identify the transmitter.

Some transmitters 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 a new serial number enrolled by the control).

Do not install batteries in wireless transmitters until you are ready to enroll during system programming. After enrolling, batteries need not be removed.

6 BHS-3420 Barran Reporting Module

6.1 BHS-3420 Barran reporting module

6.1.1 Choose a mounting location

The BHS-3420 is a Barran reporting module, used for reporting events to the Central Station, or a private email address.

Mount the reporting module with the antenna pointing UP, and close to the panel. Wire length from the reporting module to the panel should not exceed 25 feet, and must be wired with 18 AWG wire.

For the optimal mounting location, **avoid mounting:**

- Under a metal roof
- Close to large metal objects
- Below ground level (such as in basements)

To ensure an appropriate mounting location, temporarily mount the reporting module, and test the receiving strength with the programmer.

To test the receiving strength, do the following:

From the Advanced Menu, select Device, Barran Radio GW, View/Edit Device and then Device Setting. Use arrow keys to browse to the following screen:

```

BARRAN status
Registered: YES
Radio busy: NO
Signal: [-----]
  
```

Registered: YES = The device is connected to the base station.

Registered: NO = Not connected / no service

Radio Busy: NO = The radio is idle.

Radio Busy: YES = The radio is busy transmitting or receiving signals.

Signal: [Strength of signal]; 4 - 7 bars = okay; 1 - 3 bars = weak signal, use the external antenna.

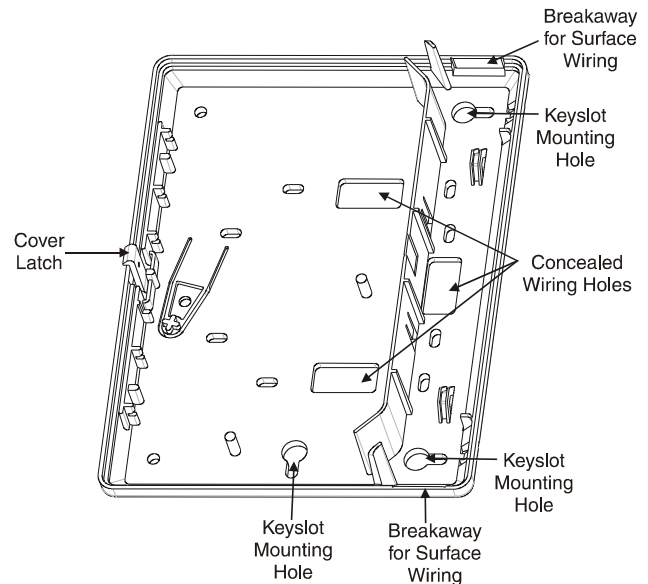
If the signal is not strong enough:

1. Move the reporting module up higher, and closer to the perimeter of the site.
2. Use the alternate antenna. The alternate antenna is larger, and can be mounted outdoors, if necessary. To change antenna's, unscrew the standard antenna, and replace with the wiring from the alternate antenna. Mount the alternate antenna up higher and closer to outside (or outside) the site.

6.1.2 Mount the BHS-3420 Reporting Module

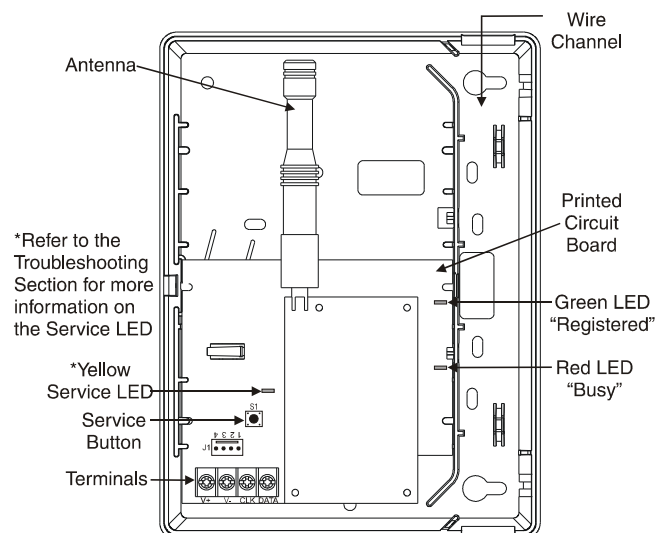
To mount the reporting module, do the following:

1. Remove the reporting module's cover by inserting and twisting a flathead screwdriver blade in the slot at the center of the cover's edge.



The reporting module back cover

2. If concealed wiring is to be used for the reporting module, route it through one of the rectangular openings on the back cover before mounting. (For surface wiring entry, thin breakaway areas are provided – see illustration.)
3. Mount the reporting module in the selected location. For greatest security, use at least three mounting holes (two keyslot holes and one round hole) provided in the plastic base.



BHS-3420 reporting module with front cover removed

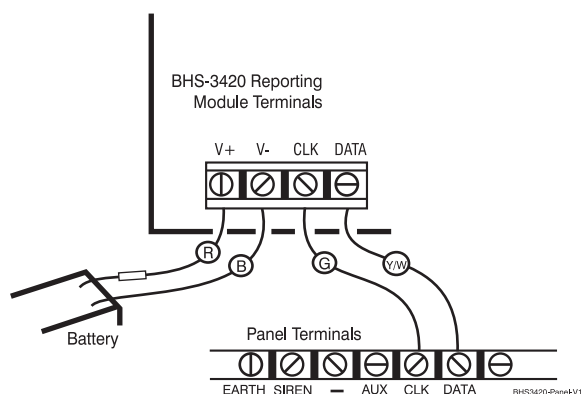
6.1.3 Wire the BHS-3420 Reporting Module

To wire the reporting module, do the following:

1. Disconnect the system's AC and DC power.

2. Wire the reporting module according to the table and illustrations using the SABATDBL1 Cable.

Reporting Module Terminal	Wire Color	Panel Terminal
V+	Red	Battery Red
V-	Black	Battery Black
CLK	Green	CLK
DATA	Yellow or white	DATA



Wire the reporting module to the panel

6.1.4 Program the BHS-3420 Reporting Module

To program the reporting module, follow the instructions below. Complete system programming information is provided in Section 9.

1. **Install the reporting module and wireless devices.** Install devices as described in the panel's installation instructions and the transmitter's installation instructions.
2. **Learn the reporting module.** In Programming Mode, select **Learn Devices** (Option 2 of the Home Menu). Wait for the panel to identify and number the system's devices. Verify the device communication (see Section 9.6.2).
3. **Select the COMM TYPE.** From the Standard menu, go to the COMM/PAGER option (option 3), select the COMM number, and then the COMM Type. Set the COMM type to Barran RF SIA to report to the Central Station; Set the COMM type to Barran RF email to report to an email address.

To report events to the Central Station, select COMM TYPE to Barran RF SIA, then,

1. Enter the address of the server to which the events will be reported.
2. Enter the area code and phone number that was assigned to the account.

To report events to an email address, change the COMM TYPE to Barran RF email, then

1. Enter the email address of the recipient to whom the events will be reported.

6.1.5 BHS-3420 LEDs

There are three LEDs on the Barran Radio Reporting Module's printed circuit board: the "Yellow Service LED" above the service button in the center of the circuit board and the "GREEN and RED STATUS LEDs" on the right-hand side of the circuit board. (See Status LEDs on illustration in section 6.1.2.)

LED COLOR	LED STATUS	DESCRIPTION
YELLOW	Service LED	Indicates panel status and communication (see section 11.2.1)
GREEN	Network Status	Blinking = Cannot connect to the network. ON for 4 seconds, Blinks for 4 secs, ON for 4 seconds repeating = Trying to connect to network. ON for 10 seconds, OFF for 1 second, ON for 10 seconds repeating = registered with network.
RED	Message Status	Fast Blink = Message being transferred to the radio. Slow Blink = Waiting for the network to acknowledge message was received. ON for 5 seconds then OFF = Message successfully sent.
RED and GREEN	Network / Message Status	Blinking for 5 seconds = Message Failure.

6.1.6 Replace the reporting module's cover

When you have finished mounting and wiring the reporting module, snap the top cover back into place.

6.1.7 Removing the BHS-3420 from the system

When removing the BHS-3420 from the system, the Comm needs to be manually deleted, or reassigned to the new central station receiver.

7 BHS-3440 GSM Reporting Module

7.1 BHS-3440 GSM reporting module

7.1.1 Choose a mounting location

The BHS-3440 is a GSM reporting module, used for reporting events to the Central Station, or a private email address.

To ensure an appropriate mounting location, temporarily mount the reporting module, and test the receiving strength with the programmer.

To test the receiving strength, do the following:

From the Advanced Menu, select Device, GSM Gateway, View/Edit Device and then Device Setting. Use arrow keys to browse to the following screen:

```
GSM GW status
Registered: YES
GSM busy: NO
Signal: [- - - - -]
```

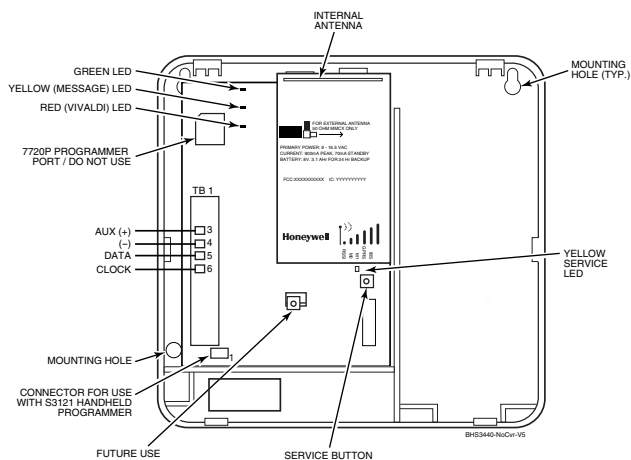
Registered: YES = The device is connected to the base station.
 Registered: NO = Not connected / no service
 GSM Busy: NO = The GSM is idle.
 GSM Busy: YES = The GSM is busy transmitting or receiving signals.
 Signal: [Strength of signal]; 4 – 7 bars = okay; 1-3 bars = weak signal.

If the signal is not strong enough, relocate the reporting module.

7.1.2 Mount the BHS-3440 Reporting Module

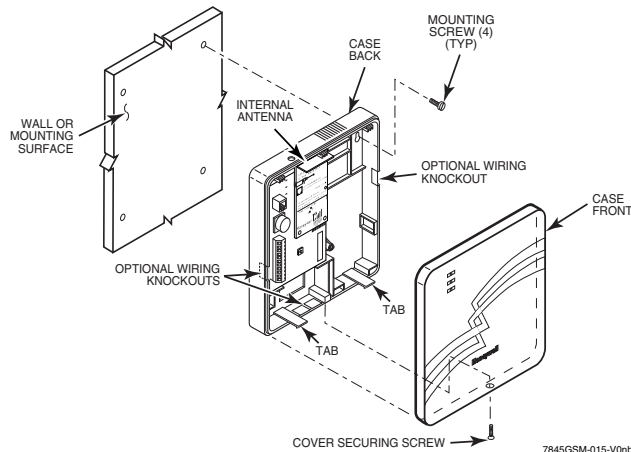
To mount the reporting module, do the following:

1. Remove the reporting module's cover by pressing on the two tabs at the bottom of the GSM module with a flathead screwdriver blade while carefully pulling the front and back covers apart.



The GSM reporting module with front cover removed

2. If concealed wiring is to be used for the GSM module, route it through one of the rectangular openings on the back cover before mounting. (For surface wiring entry, thin breakaway wiring knockouts are provided – see illustration.)
3. Mount the reporting module in the selected location using the four screws supplied. For greatest security, use at least three mounting holes (two keyslot holes and one round hole) provided in the back cover.



Mount the GSM reporting module

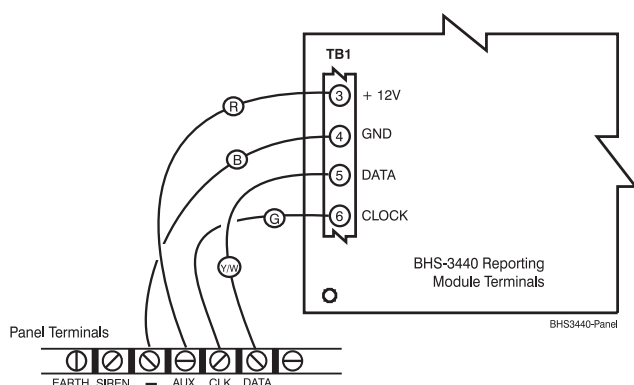
4. Wire the reporting module (see following section.)

7.1.3 Wire the BHS-3440 Reporting Module

To wire the GSM reporting module:

1. Disconnect the system's DC power.
2. Wire the reporting module according to the table and illustration.

Reporting Module Terminal	Wire Color	Panel Terminal
3 (+ 12V)	Red	8 AUX
4 (GND)	Black	7 - (common)
5 (DATA)	Yellow or White	10 DATA
6 (CLK)	Green	9 CLK



Wire the GSM module to the panel

7.1.4 Program the BHS-3440 Reporting Module

To program the reporting module, follow the instructions below. Complete system programming information is provided in Section 9.

1. **Install the reporting module and wireless devices.** Install devices as described in the panel's installation instructions and the transmitter's installation instructions.
2. **Learn the reporting module.** In Programming Mode, select **Learn Devices** (Option 2 of the Home Menu). Wait for the panel to identify and number the system's devices. Verify the device communication (see Section 9.6.2).
3. **Select the COMM TYPE.** From the Standard menu, go to the COMM/PAGER option (option 3), select the COMM number, and then the COMM Type. Set the COMM type to GSM SIA to report to the Central Station; Set the COMM type to GSM email to report to an email address.

To report events to the Central Station, select COMM TYPE to GSM SIA, then,

1. Enter the area code and phone number that was assigned to the account.

To report events to an email address, change the COMM TYPE to GSM email, then

1. Enter the email address of the recipient to whom the events will be reported. Up to three email addresses may be entered. A comma is needed to separate each email address.

7.1.5 BHS-3440 System Status LEDs

There are three LEDs in the upper left-hand corner of the GSM Reporting Module circuit board – GREEN, YELLOW and RED. These LEDs will blink to indicate different activities and conditions. Refer to the following table for a complete explanation.

LED COLOR	LED STATUS	DESCRIPTION
GREEN	N/A	OFF

LED COLOR	LED STATUS	DESCRIPTION
YELLOW	Event / Email Reporting Status	OFF = No event / email activity OR just completed successful / unsuccessful event / email reporting ON = Event / email received and attempting to connect to HWCTP/SMTP server ON for 15 seconds = Attempting to connect with HWCTP/SMTP server SLOW BLINK = Connected to HWCTP/SMTP server and exchange is in progress SLOW BLINK for 15 + seconds = Connected to HWCTP/SMTP server and attempting to exchange information with server
RED	Vivaldi Session Status	OFF = No activity OR just completed successful / unsuccessful Vivaldi session ON = Vivaldi session request received from panel ON for 15 seconds = Attempting to establish connection with Vivaldi server SLOW BLINK = Vivaldi session in progress

Note: In case of SIM card error, all three LEDs fast blink.

Yellow Service LED

The Yellow Service LED is located on the right-hand side of the circuit board, just above the Service Button. This LED blinks to indicate panel status and communication. Refer to sections 11.2.1 and 11.2.3 for additional information on the Service LED.

7.1.6 Replace the reporting module's cover

When you have finished mounting and wiring the reporting module, replace the front cover. Attach the top of the front cover first then press the bottom of the front cover inward until it snaps back into place. Secure the bottom using the cover securing screw (supplied) where shown in the *Mount the GSM reporting module* illustration. (Cover screw required by UL).

7.1.7 Removing the BHS-3440 from the system

When removing the BHS-3440 from the system, the Comm needs to be manually deleted, or reassigned to the new central station receiver.

7.1.8 Replacing a BHS-3440 in the system

To replace the BHS-3440 in the system refer to section 10.3.1 .

Note: The panel requires you to replace a device only with another device of the same type.

8 BHS-3460 Internet (IP) Reporting Module

8.1 BHS-3460 IP reporting module

8.1.1 Choose a mounting location

The BHS-3460 is an IP (Internet) reporting module, used for reporting events to the Central Station, or a private email address.

The IP reporting module must be mounted **indoors**. See the following section to mount the module.

To test the network connection, do the following:

From the Advanced Menu, select Device, IP Gateway, View/Edit Device and then Device Setting. Use arrow keys to browse to the following screen:

```
IP status
Link: YES
IP busy: NO
```

Link: YES = The device is connected to the network.

Link: NO = Not connected / network failed

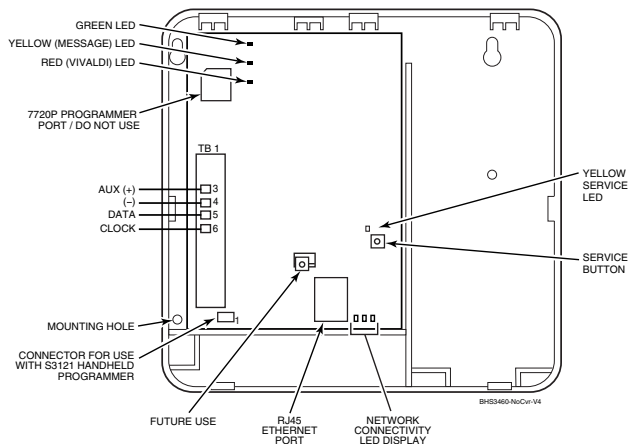
IP Busy: NO = The IP is idle.

IP Busy: YES = The IP is busy transmitting or receiving data.

8.1.2 Mount the BHS-3460 Reporting Module

To mount the reporting module, do the following:

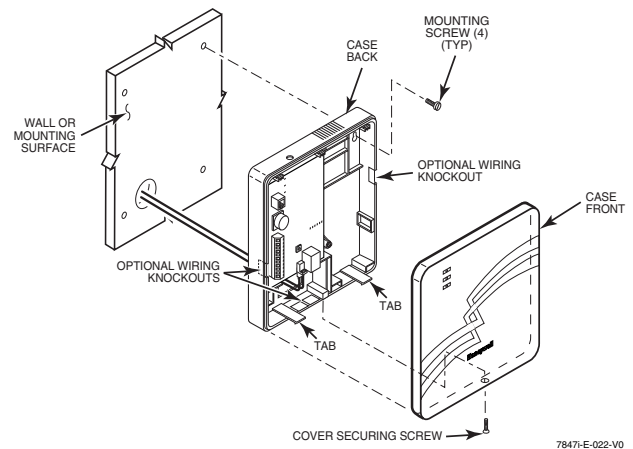
1. Remove the reporting module's cover by pressing on the two tabs at the bottom of the IP module with a flathead screwdriver blade while carefully pulling the front and back covers apart.



The IP reporting module with front cover removed

2. If concealed wiring is to be used for the IP module, route it through one of the rectangular openings on the back cover before mounting. (For surface wiring entry, thin breakaway wiring knockouts are provided – see illustration.)

3. Mount the reporting module in the selected location using the four screws supplied. For greatest security, use at least three mounting holes (two keyslot holes and one round hole) provided in the back cover.



Mount the IP reporting module

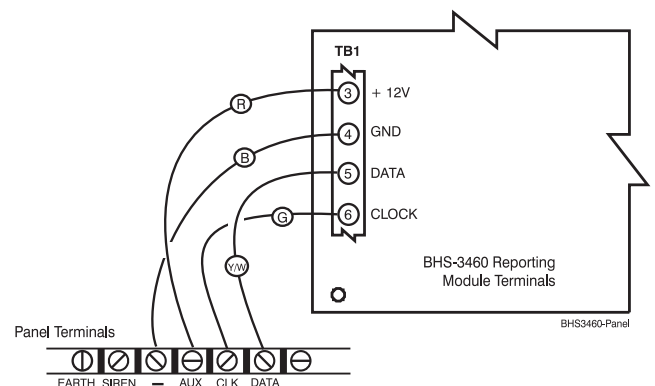
4. Wire the reporting module (see following section.)

8.1.3 Wire the BHS-3460 Reporting Module

To wire the IP reporting module, do the following:

1. Disconnect the system's AC and DC power.
2. Wire the reporting module according to the table and illustration.

Reporting Module Terminal	Wire Color	Panel Terminal
3 (+ 12V)	Red	8 AUX
4 (GND)	Black	7 - (common)
5 (DATA)	Yellow or White	10 DATA
6 (CLK)	Green	9 CLK



Wire the IP module to the panel

8.1.4 Program the BHS-3460 Reporting Module

To program the IP reporting module, follow the instructions below. Complete system programming information is provided in Section 9.

1. **Install the reporting module.** Install devices as described in the panel's installation instructions and the transmitter's installation instructions.
2. **Learn the reporting module.** In Programming Mode, select **Learn Devices** (Option 2 of the Home Menu). Wait for the panel to identify and number the system's devices. Verify the device communication (see Section 9.6.2).
3. **Select the COMM TYPE.** From the Standard menu, go to the COMM/PAGER option (option 3), select the COMM number, and then the COMM Type. Set the COMM type to IP SIA to report to the Central Station; Set the COMM type to IP email to report to an email address.

To report events to the Central Station, select COMM TYPE to IP SIA, then,

1. Enter the area code and phone number that was assigned to the account.

To report events to an email address, change the COMM TYPE to IP email, then

1. Enter the email address of the recipient to whom the events will be reported. Up to three email addresses may be entered. A comma is needed to separate each email address.

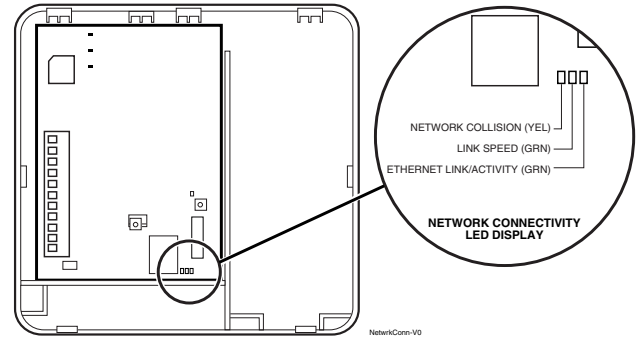
8.1.5 BHS-3460 LEDs

There are three LEDs in the upper left-hand corner of the IP Reporting Module circuit board – GREEN, YELLOW and RED. These LEDs will blink to indicate different activities and conditions. Refer to the following table for a complete explanation.

LED COLOR	LED STATUS	DESCRIPTION
GREEN	N/A	OFF
YELLOW	Event / Email Reporting Status	OFF = No event / email activity OR just completed successful / unsuccessful event / email reporting ON = Event / email received and attempting to connect to HWCTP/SMTP server ON for 15 seconds = Attempting to connect with HWCTP/SMTP server SLOW BLINK = Connected to HWCTP/SMTP server and exchange is in progress SLOW BLINK for 15 + seconds = Connected to HWCTP/SMTP server and attempting to exchange information with server
RED	Vivaldi Session Status	OFF = No activity OR just completed successful / unsuccessful Vivaldi session ON = Vivaldi session request received from panel ON for 15 seconds = Attempting to establish connection with Vivaldi server SLOW BLINK = Vivaldi session in progress

Network Connectivity Display

The network connectivity display can only be viewed with the front cover removed. It is used as a visual indication of the IP module network activity.



IP module network connectivity display

The network connectivity display consists of three LEDs. They function as follows:

LED COLOR	LED LABEL	DESCRIPTION
Yellow	Network Collision	BLINKING = Network collision detected. OFF = Normal.
1 st Green	Link Speed	ON = 100 MB/S link to Internet. OFF = 10 MB/S link to Internet.
2 nd Green	Ethernet Link / Activity	ON = Ethernet link detected. OFF = No Ethernet link detected. FAST BLINK = Transmitting / Receiving data.

Yellow Service LED

The Yellow Service LED is located on the right-hand side of the circuit board, just above the Service Button. This LED blinks to indicate panel status and communication. Refer to sections 11.2.1 and 11.2.3 for additional information on the Service LED.

8.1.6 Replace the reporting module's cover

When all the mounting and wiring is completed, replace the front cover of the IP reporting module. Attach the top of the front cover first, and press inward on the bottom section until it snaps back in place. Secure the covers with the cover securing screw provided (required for UL installations).

8.1.7 Removing the BHS-3460 from the system

When removing the BHS-3460 from the system, the Comm needs to be manually deleted, or reassigned to the new central station receiver.

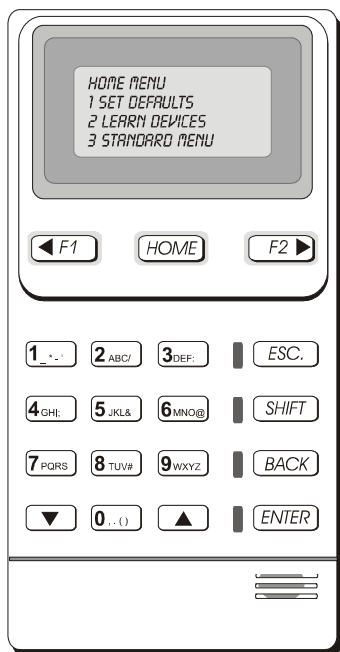
8.1.8 Replacing a BHS-3460 in the system

To replace the BHS-3460 in the system refer to section 10.3.1 .
Note: The panel requires you to replace a device only with another device of the same type.

9 Programming

9.1 Getting started

The BHS-4000B is programmed using the S3121 Alphanumeric Programmer, shown below. The programming is menu-based.



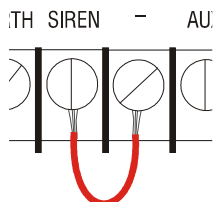
Alphanumeric Programmer, Model S3121

9.1.1 Apply power

If you are installing the panel at a site with AC power, power up the panel by applying AC and then DC power to the panel.

If you are installing the panel at a site with no AC power, power up the panel on DC power alone by doing the following:

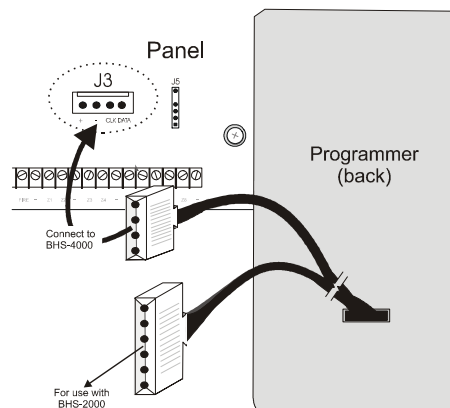
1. Apply DC power to the panel.
 2. Wait 15 seconds and create a short across the SIREN terminal.
 3. Wait 15 seconds and remove the short.
- If this procedure needs to be performed subsequently, remove the DC power and the short, and wait 60 seconds.



Short the SIREN terminals to power up the panel on DC power

9.1.2 Connect the programmer

Connect the programmer's cable to the four-pin programming port found on the panel or on some of the system's bus devices.



Connect the four-pin connector to the programming port (J3) on any bus device

Once connected, the programmer automatically turns on within one minute. To turn the programmer on immediately, press any key.

9.1.3 Enter installer code

At startup, the programmer asks you to enter your installer code.

```
ENTER INSTALLER
ACCESS CODE
>
```

Input the installer code, then press the **[Enter]** key. The default code for new installations is 0 1 2 3 4 5. When you have input the correct installer code, the Programmer identifies the version of firmware installed on the control panel, and the panel default mode. (The panel is factory set in SIA compliance default mode. See section 9.6.1 to select the defaults.)

9.1.4 Replace panel option

Before displaying the Home Menu, the programmer asks if you are in the process of replacing the system's control panel. If you are, indicate "yes" by pressing the **[1]** key. As described in more detail on page 49, the programmer then gathers the necessary information to automatically download the previous panel's programming into the new panel.

If you are not in the process of replacing a panel, press any key **except [1]** to see the Home Menu.

9.1.5 Home Menu

The Home Menu now appears. The programmer displays three 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 **[▲]** and **[▼]** keys to scroll through the menu items.

```
HOME MENU
1 Set Defaults
2 Learn Devices
3 Standard Menu
```

Home Menu, as it first appears on display

```
HOME MENU
1 Set Defaults
2 Learn Devices
3 Standard Menu
4 Advanced Menu
5 Test Menu
6 Upload Config
7 Browse Events
9 Diagnostics
0 Exit
```

Entire Home Menu

The Home Menu allows you to choose between Standard and Advanced Programming, and a variety of diagnostic tools. Press the [▼] 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 [▲] and [▼] keys, and then press the [Enter] key to select it. You may also select an item by entering its menu number.

Some menu items are preceded by letters instead of numbers. You cannot select these items by entering the letter. Instead, you must scroll to the lettered menu item and select it by pressing the [Enter] key.

9.1.6 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.

9.2 Using the programmer

9.2.1 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 panel'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, the cursor flashes.

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.

9.2.2 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
	Press to select a menu item with the same number.
	The special characters are not used in the navigational mode.
	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.
	Not used in the navigational mode.
	Not used in the navigational mode.
	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.
	Press once to return to the Home menu. Press again to write programming changes to memory immediately.

9.2.3 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 navigational mode.

Key	Function
	Press to enter a number to be programmed.
	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.
	Press to write changes to memory, return to navigation mode, and advance to the next topic, if applicable.
	Press to toggle between upper- and lower-case letters. (The first character of all labels or name fields is automatically capitalized.)
	Press once to erase the last character in the display.
	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.

Key	Function
 	Press to scroll through lists of programmable options (such as zone type).
	Press once to return to the Home menu without saving any changes.

9.2.4 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 and a flashing cursor. 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. 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 continues to flash, but 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. The programmer beeps to tell you that the programming change was made.

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 given a name.

```
Account Name
? Unnamed
```

To change the value, press the **[Enter]** key to switch to the data-entry mode. 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 you wish. 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 to return to the 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 **[v]** 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 **[v]** key twice.

How to specify “yes” or “no.” When the programmer requires you to answer a question with a “yes” or a “no,” you see a “>”

symbol followed by the currently programmed value. In the data-entry mode, a flashing cursor is displayed under the first character. 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, then use the **[^]** or **[v]** keys to select the desired value, then press the **[Enter]** key to write it to memory and to return to navigational mode. The programmer beeps to indicate the programming change was made.

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, a flashing cursor is displayed under the first character. The example below shows that zone 1 is currently unconfigured.

```
Zone 1.1.1
Zone type
>Unconfigured
```

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

9.2.5 Error tone

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 the following message:

```
ERROR 2!
-----
INVALID INPUT VALUE
```

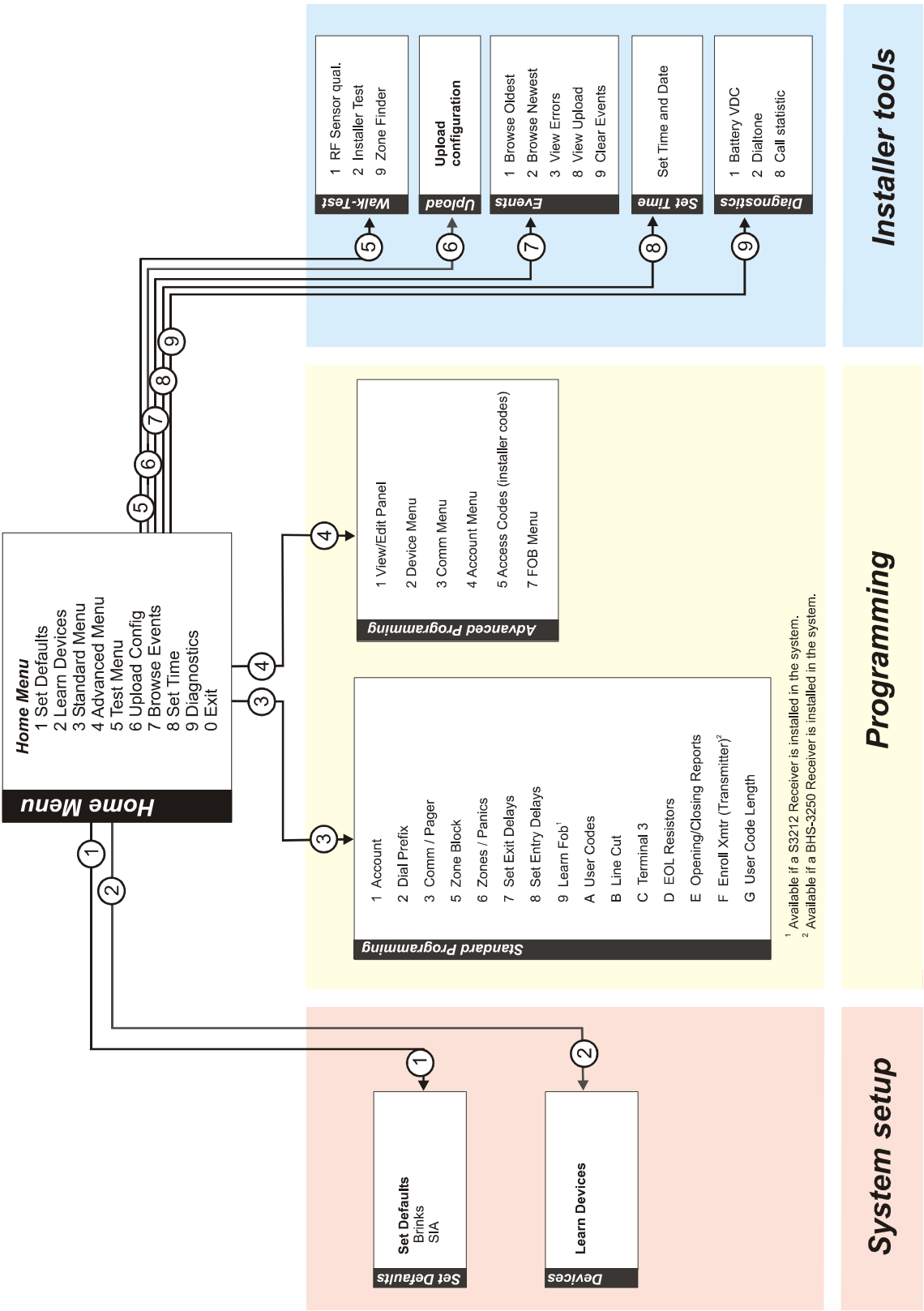
The existing programmed value is not changed. Press any key to return to the previous screen. The programmer is now in the navigation mode, not the data-entry mode.

9.2.6 Saving and overwriting programming changes

The changes you make to the panel's programming are saved as you make them. The changes are implemented approximately one minute after you leave programming mode. To implement the changes immediately, press the **[Home]** key. The programmer beeps several times to indicate that the programming changes have been incorporated into memory.

Caution Do not remove AC and DC power from the system less than one minute after you have left programming mode. Doing so can cause the panel to lose portions of its programmed data.

Home Menu Tree



The Home Menu is the main programming menu. The menu contains two programming modes, as well as tools to set up and troubleshoot the system.

9.3 Organization of menu programming

9.3.1 Programming tree

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

9.3.2 Logical programming groups

The BHS-4000B programming topics are grouped in a way that reflects the underlying organization of the panel's firmware. The main groups of programming topics are described below.

Panel topics. Panel topics are those global settings that affect more than one system device or more than one type of system event. An example of a panel topic is Cellular Backup Reporting.

Device topics. Device topics are used to configure the system's bus devices, inputs, outputs, and sounders. **The system's exit delays are keypad device topics.**

Account topics. Account topics select the system's communicators and configure the system's users, areas, and zones. **The system's entry delays are a zone configuration topic.**

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

9.3.3 Standard versus Advanced Programming

The BHS-4000B'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, such as relay configurations and certain panel options. 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 96 of Area 1, or as it is written on the programmer's display, user 1.96.)

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).
2. Select Option A: User Codes.
3. Press the **[Enter]** key to go to the select user screen.
4. Use the **[▼]** arrow to select user 96 (92 is the default) and press the **[Enter]** key.
5. Use the **[▼]** arrow to scroll to Access Code.

6. Press the **[Enter]** key to switch to the data-entry mode.
7. Use the **[Back]** key to erase the current value (123).
8. Input 159.
9. Press the **[Enter]** key to write the change to memory and return to the navigational mode.
10. 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).
2. Select Account Menu (Option 4).
3. Select User/Fob Menu (Option 3).
4. Press the **[Enter]** key to select the user number to be edited.
5. Input 96 and press the **[Enter]** key to select the user. (You can also use the **[▼]** arrow key to scroll to User 96.)
6. Select View/Edit User (Option 1).
7. Use the **[▼]** arrow key to scroll to Access Code.
8. Press the **[Enter]** key to switch to the data-entry mode.
9. Use the **[Back]** key to erase the current value (123).
10. Input 159.
11. Press the **[Enter]** key to write the change to Memory and return to the navigational mode.
12. Press the **[Home]** key to return to the Home Menu.

9.4 Numbering conventions

This section defines and explains the numbering conventions used in the BHS-4000B.

System Devices. The control panel is always known as Device 0 and the Telephone Control Module (TCM), if present, is always Device 32,763. The remaining system devices, such as the keypads, ZEMs, and receivers, are numbered in the order in which they were learned by the panel. Device numbers are simply integers: Device 1, Device 2, Device 3, etc. Because these device numbers are randomly assigned, they vary from one installation to the next. (For more information about the Learn Devices procedure, see page 32. For information about using the Service LED to determine a device's number, see page 53.)

Inputs. Inputs are assigned a two-part number in the following format **A.B**. The first part of the number (A) is the number of the device on which the input is located. The second part of the number (B) indicates which of all of the system's inputs this is. The input numbers (B) include all of the inputs in the system, not just the ones on that particular device. Thus, if a system contains one ZEM, which has been assigned the device number 4, its inputs would be numbered 4.9 through 4.16 (or, device 4, inputs 9 through 16.)

Outputs. Outputs, like inputs, are assigned a two-part number. The first part identifies the device number, and the second identifies the system's output number.

The BHS-4000B can have no more than five outputs per system. There is one output on the panel itself, the Special Function output (Terminal 3). Two additional outputs are available with each keyfob receiver installed. Thus, if a system's two keyfob receivers were assigned the device numbers 1 and 3, the system's output numbers would be as follows:

1. 0.1 (panel, Terminal 3);
2. 1.2 (keyfob receiver 1, first relay);
3. 1.3 (keyfob receiver 1, second relay)
4. 3.4 (keyfob receiver 2, first relay);
5. 3.5 (keyfob receiver 2, second relay)

User numbers. Users are assigned a two-part number in the following format **A.B**. The first part of the number (A) indicates the Account number. The second part (B) indicates the user number.

Thus, User 1.96 signifies "Account 1, User 96." In single account systems, the first number is always 1.

The following user numbers are pre-defined:

User Number	User Name	User Function
92	Host Check-in	Allows the user to initiate a call to the Vivaldi Downloader software. The code is randomly generated and changes after each use. The new code must be obtained from Customer Care. The Host Check-in code is a global code. It must be programmed for Account 1, but will operate from any account's keypad once assigned. It must be a 3-digit code.
93	TCM Access Code	Allows the user to access the Telephone Control Module through an outside telephone line.
94	Special Bypass	Restricts user's access to select zones.
95	Duress	Sends a silent panic alarm to the central station.
96	Master	Gives the user access to all of the system's user-controlled features.

Note The customer cannot change any of the pre-defined user codes, but can change the codes for auxiliary users 1-91.

Zones. Zones are assigned a three-part number in the following format **A.B.C**. The first part of the number (A) indicates the relative account number within the system. The second part (B) indicates the area number. The third part (C) indicates the zone number. Thus, Zone 1.1.5 signifies "Account 1, Area 1, Zone 5." In single account systems, the first two numbers of the zone are always 1.1.

Below is a list of factory defaulted zones:

Zone Number	Zone Name
1	Entry/Exit
2	Follower (SIA Mode Only)
248	GSM/IP case tamper (GSM/IP installations only)
249	GSM SIM (GSM installations only)
250	GSM/IP network (GSM/IP installations only)
251	Barran radio network (Barran radio installations only)
252	Fire
253	Medical
254	Police
255	Day/Night
256	Duress zone

9.5 Multiple Accounts

Each system can be set up with between one and six accounts. Systems with more than one account are called Multiple Account Systems. Each account has separate, independent users, and those users only have access to the account to which they are assigned.

Once Multiple Accounts are created, the programmer will ask the installer to enter an account number when programming things like zones, users and reporting options. Settings, users and zone assignments in programmed accounts will not change when new accounts are created.

9.5.1 Users in a Multiple Account System

Each account in a Multiple Account system can have up to 91 users, plus three special user that are set up automatically when the account is created. The special users in each account are:

Special Bypass User (#94)
Duress User (#95)
Master User (#96) Only the Master User has a code assigned automatically (123).

9.5.2 Zones in a Multiple Account System

In a single or Multiple Account system, there are 96 available zones, plus five special function zones:

#252 - Fire Key
#253 - Medical Key
#254 - Police Key
#255 - Line Cut
#256 - Duress

Unlike users, the system will not allow the same zone number in more than one account. Each zone belongs to only one account, and the state of the zone is only indicated in the account where the zone exists. Likewise, alarms will also be indicated only in the account where they occur, and the alarm can only be acknowledged/disarmed from that account.

The three soft zones (Fire / Medical / Police keys on each keypad) are global and are assigned to Account 1 by default. Any zone programmed for Fire, CO, Medical, Duress or Assault are also global. Global zones will annunciate globally, so all keypads (in all accounts) will show the alarm. Any user in any account can silence global alarms.

9.5.3 Adding Accounts

To create a new account, go to Standard menu, select Account, and at the prompt, enter the number of the new account. (Account 1 is always created by default, so enter 2, 3, 4, 5 or 6.) Press 1=YES to create the account.

Alternately, go to the Advanced menu, select the Accounts Menu, enter a new account number (2 – 6), and press Enter. If that account does not exist, the programmer will ask you if you want to create it. Press 1=YES to create the account.

Important: There is just one installer code in the whole system.

9.5.4 Reporting in a Multiple Account System

Each account has a unique set of alarm receivers, and each receiver has its own type and its own reporting account code.

When the reporting account code is changed for Account 1, Comm 1, the Installer Code is also set to the same code. This is only true for account 1, Comm 1 - the other account codes do not affect the installer code.

9.5.5 GoTo Feature

The Goto feature allows a user to access an account from a keypad in a different account. Some examples where this would be useful: a user could arm a guesthouse (Account 2) from the main house (Account 1) front door; or, in a commercial setting, the user may arm the warehouse (Account 3) from the front office (Account 1).

To use the GoTo feature, the user needs the Master User Code for the account where the keypad being used is located. To operate the remote account the user also needs a valid user code for the account he is "going" to.

To use GoTo:

- Press the keypad OPTIONS button 6 (six) times, until the keypad displays: **AREA# ENTER MASTER CODE**
- Enter the master user code for the account where the keypad is located, and the keypad will display: **AREA# ENTER.**

3. Enter the number of the area you want to "go to". The keypad will display and behave just as if it was assigned to the new account.

After about 20 seconds from the last key press, the keypad will return to the original account.

9.5.6 Deleting Accounts

To delete an account, go to Standard menu, select Account, press Delete.

When deleting an account, the zones and users are not automatically moved to an existing account. Be sure to re-assign all users and zones before deleting an account. Keypads assigned to accounts that have been deleted default back to Account 1.

9.6 Programming Options

9.6.1 Home Menu Option 1: Set defaults

The first option of the Home Menu is Set Defaults. This option allows you to revert the BHS-4000B's programming to either the Broadview defaults or SIA (SIA CP-01-2000 Standard) compliance defaults. (Factory default is SIA Compliant mode.)

Note: Some versions of the 4000 panel will display Brinks as panel default. Other versions will display Broadview as panel default.

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 [▲] and [▼] keys to show Broadview 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 E for more information on the SIA false alarm reduction settings.

9.6.2 Home Menu Option 2: Learn devices

The second option of the Home Menu is Learn Devices. When you select this option, the BHS-4000B searches for, identifies, and numbers all of the devices connected to its IntelliBus™ data bus. (During the process, the control panel itself is also identified.) You must learn the devices of your system before these devices will operate and before you can change their configurations.

To learn the system's devices, do the following:

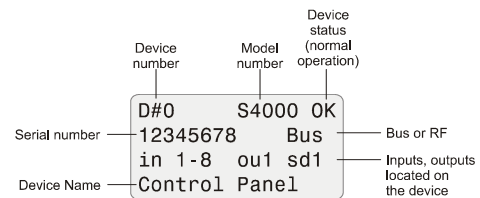
1. Select **Learn Devices** from the Home Menu.
2. Press [1] to begin the learning process. The programmer's display looks similar to this:

```
Learning devices
New:      Tot:
Searching. . .
```

The panel then learns devices that were not previously identified by the system. (The total number of devices does not include the panel.) As the panel identifies each system device, it assigns the device a number. The device order is random and varies from panel to panel.

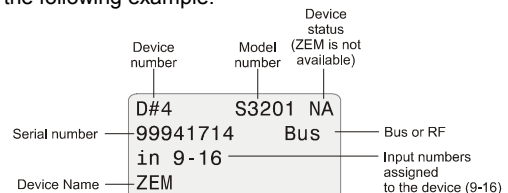
For most systems, the learning process takes a few seconds, although larger systems may take slightly longer.

3. When the learning process is complete, the programmer displays the control panel information. The display looks similar to the one shown below:



Information in a Learn Devices Display: communicating device

When the device has stopped communicating, a "NA" appears in the upper right-hand corner of the display, as in the following example.



Information in a Learn Devices Display: non-communicating device

4. To scroll through the remaining devices, press the [▲] and [▼] keys. If the device is a ZEM, the display also shows the ZEM's input (zone) range (as determined by the position of the ZEM's zone selection jumper). If the device is a keyfob receiver, the output range is shown.

Notes

If you see the letters "NA" in the upper right-hand corner of the display, that indicates that the learned device is "not available." This means that a previously-learned device has stopped communicating with the panel. This could indicate a wiring problem, a device failure, or a problem with the panel's keypad bus.

9.6.3 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	Account	The account numbers that are reported to communicators 1 through 8.
2	Dial Prefix	These are any special codes required when placing a phone call. The codes programmed here apply to all dialing options.
3	Comm / Pager	The configuration of communicators 1 through 8.
5	Zone Block	A continuous block of zones all programmed identically.
6	Zones/Panics	Zones: an individual hardwired zone Panics: a soft zone (Fire, Medical, or Police); duress or Line Cut feature.
7	Set Exit Delays	The TCM's and the keypads' exit delays.
8	Set Entry Delays	The entry delays for all the entry zones.

Menu Item	Subject	Select this menu item if you wish to program:
9	Learn Fobs (Only appears when Keyfob(s) available for programming)	Up to six system keyfobs. This menu item is visible only if a keyfob receiver has been learned.
A	User Codes	The system's user codes.
B	Line Cut	Whether line cut monitoring is enabled or disabled.
C	Terminal 3	Which type of device (if any) is connected to the special function terminal.
D	EOL resistors	Whether the circuit type for hardwired zones are normally-closed (all EOL values ignored) or EOL. The resistance of the EOL resistor is specified in Advanced Programming.
E	Op/Ci Reports	Whether the system reports openings and closings to the central station. Opening and Closing reports are automatically sent to the Personal Pager, if enabled.
F	Enroll Xmtr	Enroll RF transmitters in the system.
G	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 [▼] 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: Account

Information sought: What are the Account Numbers of Communicators 1 through 8? (In their default configurations, Communicator 1 is the central station, Communicator 2 is the customer's pager, and Communicators 3 – 8 are Blank.)

Default value: Communicator 1: blank
Communicator 2: 11
Communicators 3 – 8: Blank

To Configure: To change the account number of Communicators 1, and 3 through 8, press [▼] 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 edit the account number of Communicator 2, press the [▼] to scroll to Communicator 2. Press [Enter] to switch to the data-entry mode. Press the [Back] key to erase the current number and enter the new account number. Press [Enter] to write the data 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 [▼] key to scroll to the next menu item.

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

Voice-Over IP Duration – Vx [where x = 0–50 tenths of a second, for 0-5 seconds. Default = 0 (disable VOIP)]

Voice-Over IP Frequency – Fx [where x = 30–300 (in 10-Hz increments, for 300–3000 Hertz). Default = 210 (2100 Hz)]

Voice Over IP Delay – Qx [where x = 1–50 tenths of a second, for 0.1 second to 5 seconds (delay between end of dialing and transmission of VOIP tone). Default = 1 (0.1 seconds)]

Important: Voice Over IP commands are for installations employing internet telephone service. Any digits or dial modifiers must come before VOIP commands.

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

Menu Item 3: Comm / Pager

Information sought: What is the communication protocol of Communicators 1 through 8?

Default value: Communicator 1: Alarm Receiver
Communicator 2: Personal Pager
Communicators 3 - 8: Unconfigured

To select a Communication Protocol:

If you wish to change the Communication Protocol of one of the Communicators (Comm), with your programmer display showing "3>Comm/Pager" press 3. The display will now read:

Comm Select (1-N) _
1- Alarm Receiver

Enter the number of the Communicator (Comm) you wish to edit, then press **[Enter]**.

Press **[Enter]** and use the **[▲]** and **[▼]** keys, to scroll through the available Communication Protocols. When the desired Communication Protocol is displayed, press **[Enter]** to select it. List A, on page 46 of this manual shows all the possible Communication Protocols available for the BHS-4000B. Only the Protocols that are used by the Learned Devices will be displayed.

For Comm Protocols SIA, Numeric Pager, GSM SIA, or IP SIA:

After you press **[Enter]** to select one of the protocols listed, you will be prompted to enter an area code (Dial Area Code). Specify the long distance access code and area code that the panel should dial to reach the central station receiver. The default is "1800". If a "9" is needed for an outside line, do not enter it here. (Refer to Menu Item 2: Dial Prefix). Press **[Enter]** and **[Back]** to edit this field. Press **[Enter]** to save your entries and move to the next field.

You will then be prompted to enter a phone number (Dial Phone Number). Specify the telephone number that the panel should dial to reach the central station receiver. The default is blank. Press **[Enter]** to enter this field and enter a phone number. Press **[Enter]** to save your entries and move to the next field.

For Comm Protocol Barran RF SIA:

After you press **[Enter]** to select Barran RF SIA, the display will change to:

Comm1 Address ?

DO NOT make changes to this field. Press the **[▼]** key to move to the next field (Dial Area Code). Specify the long distance access code and area code that the panel should dial to reach the central station receiver. If it is a long distance call, include a "1" here and/or a "9" to obtain an outside line. The default is "1800". Press **[Enter]** and **[Back]** to edit this field. Press **[Enter]** to save your entries and move to the next field.

You will then be prompted to enter a phone number (Dial Phone Number). Specify the telephone number that the panel should dial to reach the central station receiver. The default is blank. Press **[Enter]** to enter this field and enter a phone number. Press **[Enter]** to save your entries and move to the next field.

For Comm Protocol Barran RF email, GSM email, IP email:

After you press **[Enter]** to select one of the protocols listed, you will be prompted to enter an email address (Address). Press **[Enter]** to enter this field and enter an email address to which the system will send reports. This field is limited to 26 characters, and the default is blank. Press **[Enter]** to save your entries and move to the next field.

To select another Comm to edit, press **[ESC]**. To exit to the Standard Menu, press **[ESC]** again.

Use the procedures outlined above to select additional Communication Protocols for additional Comms.

To Skip:

If you do not wish to change Communication Protocols, press the **[▼]** key to scroll to the next menu item.

Menu Item 5: Zone Block

Information sought:

Do you wish to program a continuous block of zones to have the same configuration?

To Configure:

If you wish to configure a block of zones, press the **[Enter]** key to begin. You see:

Starting Zone #: Enter the number of the first zone in the block (the default is blank). Press the **[Enter]** key.

Ending Zone #: Enter the number of the last zone in the block (the default is blank). Press the **[Enter]** key.

Zone Type: Choose the appropriate zone type from List B on page 46 (the default is unconfigured.) Press the **[Enter]** key.

Circuit Type: Choose from the available circuit types shown in List C on page 46 (the default is normally-closed.) Press the **[Enter]** key.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

Set Zone Block? To program the block of zones with the settings you just specified, press **[1]** (yes). To abort the process, press **[2]** (no). Press the **[Enter]** key.

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

To Skip:

If you do not wish to configure a block of zones, press the **[▼]** key to scroll to the next menu item.

Menu Item 6: Zones/Panics

Information sought:

Do you wish to configure a particular zone? This applies to all detection zones, the soft zones (Fire, Medical, and Police), as well as the specialty zones (the duress and line cut features).

Default value:

The system's zones are configured as shown on page 47.

To Configure:

If you do wish to edit a zone, press the **[Enter]** key to begin. You see:

Zone (1-N): Input the number of the zone you wish to configure, then press the **[Enter]** key. You may also use the **[▲]** and **[▼]** keys to scroll to the desired zone.

Enabled: This topic appears for all zones. Program "yes" to enable the zone; "no" to disable it. Press the **[Enter]** key to write the change to memory. (By default, all zones except the line cut and duress (Zones 255 and 256) are enabled.)

Zone Type: Choose the appropriate zone type from List B (page 46). The default for zone 1 is entry/exit; the default for zone 2 is follower (SIA mode only); the remaining zones are unconfigured.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

To Skip: If you do not wish to configure an individual zone, press the **[▼]** key to scroll to the next menu item.

Menu Item 7: Set Exit Delays

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

Default value: Blank

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.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

Then input the number of exit delay seconds and press the **[Enter]** key again.

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

Menu Item 8: Set Entry Delays

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

Default value: Blank

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.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

Then input the number of entry delay seconds and press the **[Enter]** key again.

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

Menu Item 9: Learn Fobs

[NOTE: This item only appears when an S3212 Receiver is installed in the system, and does NOT apply to 5800 series keyfobs. In a multiple account system, all S3212 keyfobs are assigned to users in Account 1.]

Information sought: Do you wish to program one or more keyfobs?

Default value: No keyfobs learned

To Configure: If you wish to program a keyfob, press the **[Enter]** key to begin. The top line of the display indicates the user number to which the keyfob will be assigned.

When prompted, press one of the keyfob's buttons twice. To exit without programming a keyfob, press the **[Esc]** key.

When the keyfob 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 keyfob before the keyfob is operational. The user is enabled when you create it using Item A (User Codes) from the Standard Menu.

To Skip: If you do not wish to program a keyfob, press the **[▼]** key to scroll to the next menu item.

Menu Item A: User Codes

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

Default value: Only the Master, the Host Check-in, and the TCM Access codes have default values (123, 876, and 654321, respectively); all other codes are blank. For all codes except the TCM Access Code and Host Check-In Code, the number of digits in the user code is determined by the User Code Length topic (**Advanced | Account | VwEdit | User Code Length** or **Standard | User Code Len**). The number of digits in the TCM Access Code is equal to the number of digits in the programmed code (user 93). The number of digits for the Host Check-in Code is fixed at three digits

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

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

User (1-N): 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 - 91 are blank
User 92 - Host Check-in
User 93 - TCM Access
User 94 - Special Bypass User
User 95 - Duress User
User 96 - 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 **[▼]** key to scroll to the next menu item.

Menu Item B: 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 C: Terminal 3

Information sought: What is the configuration of the Special Function Output (Panel terminal 3)?

Default value: None

To Configure: If you wish to change the setting, press the **[Enter]** key to begin. Choose none, courtesy or cellular backup). 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.

Menu Item D: EOL Resistors

Information sought: Do the circuits of the system's burglary zones (entry/exit, force exit, instant, follower, and follower delay) contain EOLs?

Default value: No (zones are configured as normally-closed)

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 E: Opening/Closing (Op/Ci) 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 F: Enroll Xmtr (Transmitter)

[NOTE: This item only appears when a BHS-3250 Receiver is installed in the system.]

Information sought: Are the RF transmitters enrolled in the system?

Default value: No

To Configure Transmitters: To enroll a 5800 series RF transmitter, press the **[Enter]** key. You see:

Enroll RF Device, Select Type: Press **[Enter]**, then use the **[^]** or **[v]** to scroll through the list of 5800 series RF devices. Press **[Enter]** to select the device type.

You will be asked to **Add RF Device Serial number**. Press **[Enter]**, then input the device serial number (digits only), and press **[Enter]** again. [Note: The serial number will be on a label somewhere on the device. If the serial number starts with a letter, omit the letter and enter the digits only.]

If the transmitter has more than one alarm input (example: 5816 Door), you will be prompted for the input to use. Press **[Enter]**, then use the **[^]** or **[v]** keys to select the appropriate input option, then press **[Enter]** again.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

Next you will be prompted to Assign the input to a zone number. The programmer will automatically suggest the first unused zone. Press **[Enter]**, type in the zone number (Valid range is 1 to 96) and press **[Enter]** again.

If you select a zone that is already in use, you are told **Zone in use. Overwrite?** Press "1" to overwrite, or "2" to select a different zone number. (Selecting "1" will disable the input previously assigned to that zone.)

You will then be asked to **Trigger Xmtr to complete enrollment**. Activate the transmitter (fault, restore or tamper), and the transmitter will display: **Transmitter enrolled <Press any key>**.

To Configure Keyfobs: To enroll a 5804E Keyfob, press the **[Enter]** key. You see:

Enroll RF Device, Select Type: Press **[Enter]**, then use the **[^]** or **[v]** to scroll through the list of 5800 series RF devices to the 5804E. Press **[Enter]** to select the keyfob.

Screen will display **Ready to learn fob. Press all 4 keys at once**. Press all four buttons on the keyfob at the same time and the display reads **Found fob. Press ONE key**. Press any fob button. The keyfob serial number will be displayed and you will be asked to verify it is correct. Press "1" if it is correct, or "2" if it is not.

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

You will be asked to assign this fob to a user. Press **[Enter]**, type in the use number, and press **[Enter]** again.

Note: The user number selected must be set up in the system in order for the keyfob to operate correctly.

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

Press **ESC** any time before triggering the transmitter to cancel enrollment.

Menu Item G: Set User Code Len

Information sought: What is the user code length for the Accounts?
Default value: 3 digits

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

Account: Enter the account number and press the **[Enter]** key. (Note: this option only appears in Multiple Account systems.)

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 **ERROR! 2 INVALID INPUT VALUE**. 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 **[▼]** key to scroll to the next menu item.

9.6.4 Home Menu Option 4: Advanced Menu

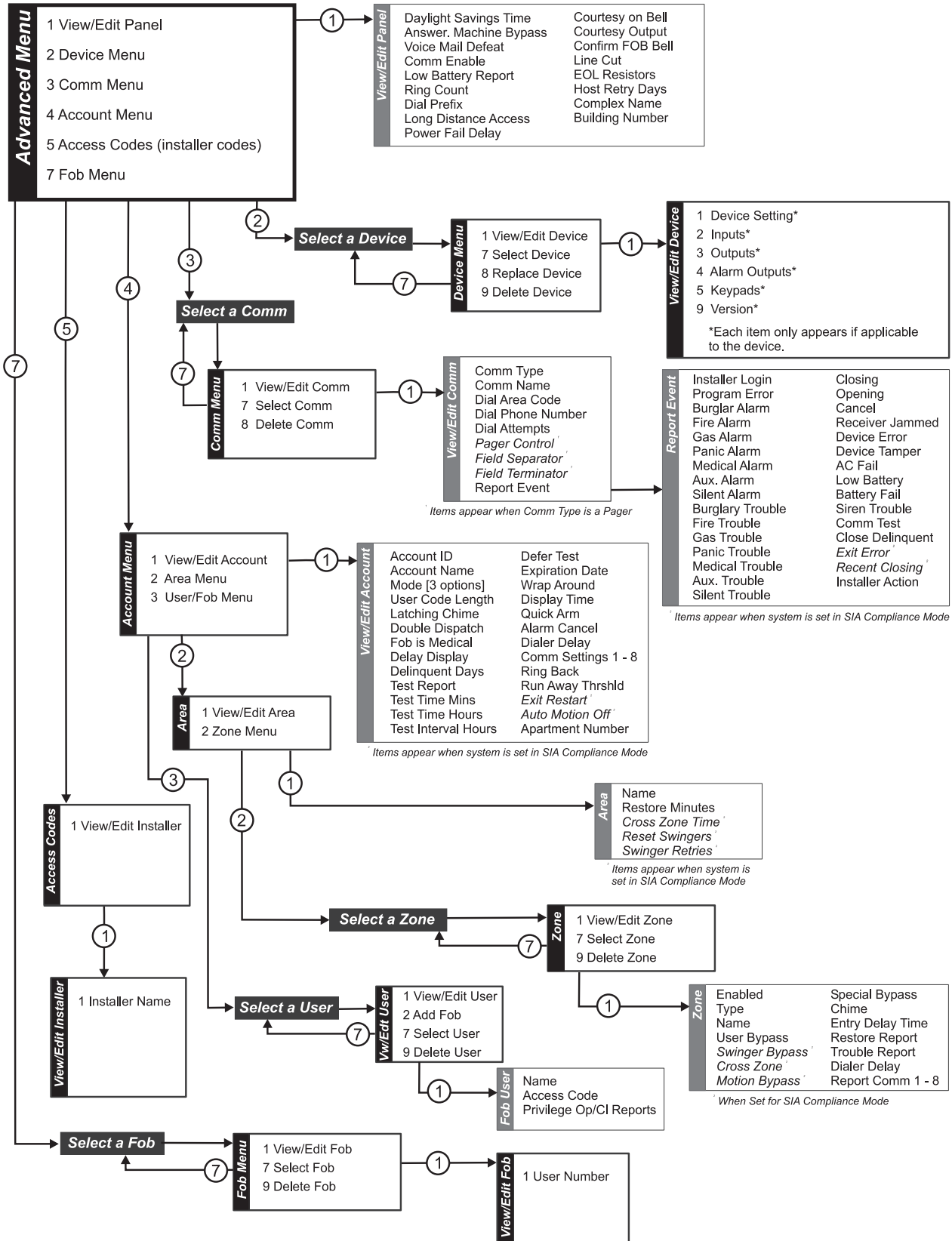
Advanced Programming Tree. The first three levels of the Advanced Menu tree are shown in the illustration on the following page. You will find a definition of each topic in **Appendix C: Glossary of Programmable Topics**.

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: View/Edit Panel. The first item in the Advanced Menu is View/Edit Panel. This item includes the topics listed in the following table.

Topic	Range	Default
1. Daylight Savings	Yes/No	Yes
2. Answering Machine Bypass Enable	Yes/No	Yes
3. Voice Mail Defeat Enable	Yes/No	Yes
4. Comm Enable	Yes/No	Yes
5. Low Battery Report Enable	Yes/No	Yes
6. Ring Count	0-15	15
7. Dial Prefix	0-8 characters	Blank
8. Long Dist Access	0-16 characters	Blank
9. Power Fail Delay	0-255 minutes	5
10. Courtesy on Bell	Yes/No	No
11. Courtesy Output Enable	Yes/No	No
12. Confirm FOB Bell	Yes/No	No
13. Line Cut Monitor Enable	Yes/No	No
14. EOL Resistors	Yes/No	No
15. Host Retry Days	1-30	1
16. Complex Name	0-24 characters	Blank
17. Building Number	0-8 characters	Blank

Advanced Menu Tree



The Advanced Menu allows you to program the entire system.

Advanced Menu Option 2: Device Menu. The second item in the Advanced Menu is the Device Menu. From this menu, you can change the programming of the panel or any bus device. The numbers are assigned to the bus devices at random, but they reflect the order in which the devices were learned. The only exceptions are the control panel, which is always Device 0, and the TCM, which is always device 32,763. The items in the Device Menu will also vary, depending upon which device you are editing.

The BHS-4000B programming distinguishes between inputs and zones. An input is a description of the physical characteristics of a device's electrical circuit. This includes the circuit type, response characteristics, and other physical attributes. Inputs can be connected to any sensing device, such as a motion detector, a water level monitor, or a temperature sensor. Inputs can also be connected to keyswitches and similar controlling devices. A zone, on the other hand, is a description of the logical characteristics of the circuit. The zone determines how the panel responds to the various conditions of the input. Inputs are programmed in Advanced Programming Device Menu, while zones are programmed in the Account Menu. For ease of programming, the default input and zone numbers of the BHS-4000B are the same (for example, input 7 is zone 7).

Table 1. View/Edit Device 0 (Control Panel)

Topic	Range	Default
1. Device Setting		
Device Location	0-24 characters	Control Panel
2. Inputs		
Enabled	Yes/No	Yes
EOL Resistance	Select from List G (page 46)	4.7K Ohm
Response Time	20-30,000 milliseconds	Follower: 350 F. Delay: 350 All others: 150
Circuit Type	Select from List C (page 46)	Normally Closed
3. Outputs (Special Function Output-Terminal 3)		
Output Mode	Automatic event Manual command	Manual command
Output Name	0-24 characters	Special Function Output
3. Trigger (4 separate Triggers available)		
Trigger options are available when Output Mode is set for Automatic events.	Select from List F (page 46)	See List F (page 46)
4. Alarm Outputs (Bell and Siren Outputs)		
Alarm Output Name	0-24 characters	Siren/Bell
Account #*	1 – 6	1
Supervised	Yes/No	Yes
Fire Pattern	Select from List D (page 46)	Temp Code 3 USA
Fire Cutoff Minutes	0-255 minutes	0 (latching)
Burglary Pattern	Select from List D (page 46)	Steady
Burglary Cutoff Minutes	0-255 minutes	5
Panic Pattern	Select from List D (page 46)	Steady
Panic Cutoff Minutes	0-255 minutes	5
Medical Pattern	Select from List D (page 46)	Silent
Medical Cutoff Minutes	0-255 minutes	0
Gas Pattern	Select from List D (page 46)	Pulse 1s/1s
Gas Cutoff Minutes	0-255 minutes	0 (indefinite)

Topic	Range	Default
Auxiliary Pattern	Select from List D (page 46)	Silent
Auxiliary Cutoff Minutes	0-255 minutes	0
Latch Strobe	Yes/No	Yes
Warble Siren	Yes/No	Yes

***Note:** The Account number option only appears when the system is set up as a Multiple Accounts system, although the Alarm Output is shared between accounts. This setting has no effect on the BHS-4000B.

Table 2. View/Edit Device (Keypad)

Topic	Range	Default
1. Device Setting		
Device Location	0-24 characters	LED or Icon Keypad
5. Keypads		
Keypad Name	0-24 characters	Unnamed
Account #*	1-6	1
Keypad #	1-128	Automatically numbered
Chime Enable	Yes/No	Yes
Exit Tone Enable	Yes/No	Broadview: No SIA: Yes
Entry Tone Enable	Yes/No	Yes
Exit Delay Time	Broadview: 1-250 seconds SIA: 45-250 seconds	Broadview: 80 SIA: 60
Backlight Latch	Yes/No	Yes
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000

Table 3. View/Edit Device (Zone Expansion Module)

Topic	Range	Default
1. Device Setting		
Device Location	0-24 characters	Zone Expander
2. Inputs		
Account #*	1-6	1
Zone #	Determined by setting of J1 (8 zone increments)	
Response Time	20-30,000 milliseconds	150
Circuit Type	Select from List C	Normally Closed
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Determined by jumper J1	See page 53

Table 4. View/Edit Device (Telephone Control Module (TCM))

Topic	Range	Default
1. Device Setting		
Device Location	0-24 characters	TCM
5. Keypads		
Keypad Name	0-24 characters	Unnamed

Keypad #	1-128	Automatically numbered
Swap * # keys	Yes/No	No
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000

Table 5. View/Edit Device (Keyfob Receiver)

Topic	Range	Default
1. View/Edit Device		
Device Location	0-24 characters	Fob Receiver
2. Output		
Output (the first relay on the narrow-band receiver)		
Output Mode	Automatic event Manual command	Automatic Event
Output Name	0-24 characters	Garage Door
3. Trigger		
1. Trigger 1		
Trigger Event	Select from List F (page 46)	Keyfob Button Down
Button Number	Any/1-16	4
Output Pattern	Select from List D (page 46)	Steady
Cutoff Seconds	0-32,767 (9.1 hours)	1
2. Trigger 2		
Trigger Event	Select from List F (page 46)	Disabled
3. Trigger 3		
Trigger Event	Select from List F (page 46)	Disabled
4. Trigger 4		
Trigger Event	Select from List F (page 46)	Disabled
Output (the second relay on the narrow-band receiver)		
Output Mode	Automatic event Manual command	Automatic Event
Output Name	0-24 characters	Arming Strobe
3. Trigger		
1. Trigger 1		
Trigger Event	Select from List F (page 46)	Area Armed
Output Pattern	Select from List D, (page 46)	Steady
Cutoff Seconds	0-32,767 seconds (9.1 hours)	2
2. Trigger 2		
Trigger Event	Select from List F (page 46)	Area Disarmed
Output Pattern	Select from List D (page 46)	Steady
Cutoff Seconds	0-32,767 seconds (9.1 hours)	2

3. Trigger 3		
Trigger Event	Select from List F (page 46)	Disabled
4. Trigger 4		
Trigger Event	Select from List F (page 46)	Disabled

9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000

Table 6. View/Edit Device (BHS-3250 Receiver)

Topic	Range	Default
1. View/Edit Device		
Device Setting		
Firmware Version	Determined by device	01.01
Hardware Setting	Does not apply to this device	0000
Device Location	0-24 characters	BHS-3250 Receiver
RF Noise	Determined by device	0
Jam Count	Determined by device	
3. Output		
Output (the first relay on the narrow-band receiver)		
Output Mode	Automatic event Manual command	Automatic Event
Output Name	0-24 characters	Garage Door
3. Trigger		
1. Trigger 1		
Trigger Event	Select from List F (page 46)	Keyfob Button Down
Button Number	Any/1-16	4
Output Pattern	Select from List D (page 46)	Steady
Cutoff Seconds	0-32,767 (9.1 hours)	1
2. Trigger 2		
Trigger Event	Select from List F (page 46)	Disabled
3. Trigger 3		
Trigger Event	Select from List F (page 46)	Disabled
4. Trigger 4		
Trigger Event	Select from List F (page 46)	Disabled
Output (the second relay on the narrow-band receiver)		
Output Mode	Automatic event Manual command	Automatic Event
Output Name	0-24 characters	Arming Strobe

3. Trigger		
1. Trigger 1		
Trigger Event	Select from List F (page 46)	Area Armed
Output Pattern	Select from List D, (page 46)	Steady
Cutoff Seconds	0-32,767 seconds (9.1 hours)	2
2. Trigger 2		
Trigger Event	Select from List F (page 46)	Area Disarmed
Output Pattern	Select from List D (page 46)	Steady
Cutoff Seconds	0-32,767 seconds (9.1 hours)	2
3. Trigger 3		
Trigger Event	Select from List F (page 46)	Disabled
4. Trigger 4		
Trigger Event	Select from List F (page 46)	Disabled
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000

Table 7. View/Edit Device (RF Device)

Topic	Range	Default
1. Device Setting		
Device Setting		
Firmware Version	Determined by device	
Hardware Setting	Determined by device	
Device Location	0-24 characters	RF Device
Supervision Rate	4 - 42 Hours	4
RF Signal -----	Determined by device	
Select Input	External Magnet Both	Magnet
Inputs		
Enabled	Yes/No	Yes
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Determined by device	

Table 8. View/Edit Device (Barran Reporting Module)

Topic	Range	Default
1. Device Setting		
Device Setting		
Firmware Version	Determined by device	
Hardware Setting	Determined by device	

Device Location	0-24 characters	Barran Radio GW (See Section 6.1.1)
7. Com Ports		
NOTE: DO NOT change any settings under Com Ports.		
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Determined by device	

Table 9. View/Edit Device (GSM Reporting Module)

Topic	Range	Default
1. Device Setting		
Device Setting		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000
Device Location	0-24 characters	GSM Gateway (See Section 7.1.1)
SCID:	Determined by device	
IMEI:	Determined by device	
Registered:	Determined by device	
GSM Busy:	Determined by device	
Signal:	Determined by device	
GPRS:	Determined by device	
Line Volt:	Determined by device	
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	

Table 10. View/Edit Device (IP Reporting Module)

Topic	Range	Default
1. Device Setting		
Device Setting		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	0000
Device Location	0-24 characters	IP Gateway (See Section 8.1.1)
MAC:	Determined by device	

Link:	Determined by device	
IP Busy:	Determined by device	
DHCP:	Determined by device	
Line Volt:	Determined by device	
9. Version		
Firmware Version	Determined by device	
Hardware Setting	Does not apply to this device	

Advanced Menu Option 3: 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 48 communicators (8 communicators per account). 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.

Note: Menu items 6-8 only appear when the communication device is a pager.

Topic	Range	Defaults Broadview Mode						Defaults SIA Mode					
Comm Type	Select from List A page 46	SIA	Numeric Pager	Barran RF SIA	GSM or IP SIA	Barran RF Email ¹	GSM or IP Email ¹	SIA	Numeric Pager	Barran RF SIA	GSM or IP SIA	Barran RF Email ¹	GSM or IP Email ¹
Comm Name	0-24 characters	Alarm Receiver	Personal Pager	Barran Radio SIA	GSM or IP Gateway	Barran Radio Email ¹	GSM or IP Gateway Email ¹	Alarm Receiver	Personal Pager	Barran Radio SIA	GSM or IP Gateway	Barran Radio Email ¹	GSM or IP Gateway Email ¹
1. View/Edit Comm													
Address	0-64 characters	N/A	N/A	N/A	N/A			N/A	N/A	N/A	N/A		
Dial Area Code	0-8 characters	1800	1800	1800	1800	N/A	N/A	1800	1800	1800	1800	N/A	N/A
Dial Phone Number	0-16 characters					N/A	N/A					N/A	N/A
Dial Attempts	0-15	15	1	3	15	3	15	15	1	3	15	3	15
Pager Control	0-32 characters	N/A	T1400, 20D1	N/A	N/A	N/A	N/A	N/A	T1400, 20D1	N/A	N/A	N/A	N/A
Field Separator	Single character	N/A	*	N/A	N/A	N/A	N/A	N/A	*	N/A	N/A	N/A	N/A
Field Terminator	0-32 characters	N/A	#	N/A	N/A	N/A	N/A	N/A	#	N/A	N/A	N/A	N/A
Installer Login	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Program Error	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Burglary Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fire Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Gas Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panic Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medical Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Auxiliary Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silent Alarm	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Burglary Trouble	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Fire Trouble	Yes/No	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No
Gas Trouble	Yes/No	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No
Panic Trouble	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Medical Trouble	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Auxiliary Trouble	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Silent Trouble	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Closing	Yes/No	No	Yes	No	No	Yes	No-GSM Yes-IP	No	Yes	No	No	Yes	No-GSM Yes-IP
Opening	Yes/No	No	Yes	No	No	Yes	No-GSM Yes-IP	No	Yes	No	No	Yes	No-GSM Yes-IP
Cancel	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Receiver Jammed	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Device Error	Yes/No	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No
Device Tamper	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
AC Fail	Yes/No	No	Yes	No	No	Yes	Yes	No	Yes	No	No	Yes	Yes
Low Battery	Yes/No	Yes	No	Yes	Yes	No	No-GSM Yes-IP	Yes	No	Yes	Yes	No	No-GSM Yes-IP
Battery Fail (Load Shed)	Yes/No	Yes	No	Yes	Yes	No	No-GSM Yes-IP	Yes	No	Yes	Yes	No	No-GSM Yes-IP
Siren Trouble (Supervision Failure)	Yes/No	Yes	No	Yes	Yes	No		Yes	No	Yes	Yes	No	No
Comm Test	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Close Delinquent	Yes/No	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	No	No
Exit Error (SIA Only)	Yes/No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	No	No	No	No	No
Recent Closing (SIA Only)	Yes/No	N/A	N/A	N/A	N/A	N/A	N/A	Yes	No	No	No	No	No
Installer Action	Yes/No	No	No	No	No	No	No	Yes	No	No	No	No	No
FOB Low Battery	Yes/No	No	No	No	No	No	No	No	No	No	No	No	No
Device ID	1-32767	N/A	N/A					N/A	N/A				
Timeout	10-600	N/A	N/A	200	60	200	N/A	N/A	N/A	200	60	200	N/A

¹In order for emails to be received without being filtered out, end-user email systems must be configured to accept trusted emails from the panel.

Advanced Menu Option 4: Account Menu. The fourth item in the Advanced Menu is the Account Menu. The Account Menu allows you to configure the system's eight communicators, and make changes to a variety of account-wide topics. The Account Menu includes the topics listed in the table below.

The BHS-4000B distinguishes between account topics and area topics. The account topics found in View/Edit Account are global topics that select the system as a whole. Area topics, in contrast, only configure a portion of an account. Areas are created by subdividing the system into groups of zones. (It should be noted that this version of the BHS-4000B only supports one area.)

Topic	Range	Default
1. View/Edit Account		
Account ID	0-12 characters	Blank
Account Name	0-24 characters	Unnamed
Account Mode	Normal Local System Local Fire	Normal
User Code Length	3-8 digits	3
Latching Chime	Yes/No	Yes
Double Dispatch	Yes/No	Broadview: No SIA: Yes
FOB is Medical	Yes/No	No
Delay Display Enable	Yes/No	Yes
Delinquent Days	0-255 days	30
Test Report Enable	Yes/No	Yes
Test Time - Minutes	0-59 Minutes	0
Test Time - Hours	0-23 Hours	0
Test Interval - Hours	0-10,000 hours	4,368 (6 months)
Defer Test	Yes/No	Yes
Expiration Date	MM/DD/YYYY	09/09/9999
Wrap Around Enable	Yes/No	Yes
Display Time	Yes/ No	Yes
Quick Arm Enable	Yes/No	Yes
Alarm Cancel Enable	Yes/No	Yes
Dialer Delay Time	Broadview: 0-22.5 seconds SIA: 15-45 seconds	Broadview: 20 SIA: 30
Comm 1 Settings		
Comm 1 Report Account	3-5 characters (SIA, Barran /GSM/IP SIA) 2-5 characters (all other Comm types)	Blank
Comm 2 Settings		
Account Comm (2)	Select from displayed list	Personal Pager
Comm (2) Report Account	3-5 characters (SIA, Barran /GSM/IP SIA) 2-5 characters (all other Comm types)	11
Comm (2) Backup	Yes/No	No
Ring Back (arming confirmation)	Yes/No	No
Run Away Thrshld	0-15 characters	8
Exit Restart (SIA Only)	Yes/No	Yes
Auto Motion Off (SIA Only)	Yes/No	Yes
Apartment Number	0-8 characters	Blank
Comm 3-8 Settings		
Account Comm (3-8)	Select from displayed list	Not assigned

Topic	Range	Default
Comm (3-8) Report Account	3-5 characters (SIA, Barran /GSM/IP SIA) 2-5 characters (all other Comm types)	Blank
Comm (3-8) Backup	Yes/No	No
2. Area Menu		
1. View/Edit Area		
Area Name	0-24 characters	Unnamed
Restore Minutes	0-250 minutes	5
Cross Zone Time (SIA only)	0-255 seconds	20
Reset Swingers (SIA only)	Yes/No	No
Swinger Trips (SIA only)	0-7	1
2. Zone Menu		
Select Zone		
1. View/Edit Zone		
Enabled	Yes/No	Yes for all, except Line Cut and Duress zones.
Zone Type	Select from List B (page 46)	See page 47
Zone Name	0-24 characters	See page 47
User Bypass Enable	Yes/No	See page 47
Swinger Bypass Enable (SIA only)	Yes/No	See Note at end of table.
Cross Zone Enable (SIA only)	Yes/No	No
Motion Bypass Enable	Yes/No	See page 47
Special Bypass Enable	Yes/No	No
Chime Zone Enable	Yes/No	See page 47
Entry Delay Time	0-250 seconds	See page 47
Restore Report Enable	Yes/No	No
Trouble Report Enable	Yes/No	See page 47
Dialer Delay Enable	Yes/No	See page 47
Report Comm 1	Yes/No	Yes
Report Comm 2	Yes/No	Yes
Report Comm 3	Yes/No	Yes
Report Comm 4	Yes/No	Yes
Report Comm 5	Yes/No	Yes
Report Comm 6	Yes/No	Yes
Report Comm 7	Yes/No	Yes
Report Comm 8	Yes/No	Yes
3. User/Fob Menu		
Select User		
1. View/Edit User		
User Name	0-24 characters	See table on page 31
User Access Code	Deter- mined by User Number	Master User 1-2-3; TCM User 6-5-4-3-2-1; Host Check- in 8-7-6; Blank for all others

Topic	Range	Default
User Privileges		
Op/CI Reports	Yes/No	No
2. Add Fob (Fob Receiver must be present)	Adds keyfob for current user. Note: Cannot add Fob for Users 92-96.	
7. Select User		
9. Delete User		

Note: Swinger Bypass is **enabled** in SIA mode for the following zone types: EXIT, EXIT_FORCE_ARM, INSTANT, FOLLOWER, DAY_NIGHT, MEDICAL, ASSAULT, FOLLOWER_DELAY, and disabled for all other zone types.

In Broadview mode, Swinger Bypass is **disabled** for all zone types.

Advanced Menu Option 5: Access Codes. The fifth item in the Advanced Menu is Access Codes. Use this menu to create new installer identities. The menu includes the topic listed in the table below.

Topic	Range	Default
1. Installer Name	0-24 characters	Installer

Note The installer code is the same number as the Alarm Receiver Report Account topic.

Advanced Programming Option 7: Fob Menu. The seventh item in the Advanced Menu allows you to configure or delete a keyfob.

When you select Option 7, the programmer's display looks similar to the one shown below:

FOB: 6701:0000

The number shown in the display is the serial number of the first keyfob that the panel learned. This serial number can also be found on a label affixed to the keyfob's PCB. If you wish to edit that keyfob, press the **[Enter]** key. If you wish to edit a different keyfob, press the **[▼]** key to scroll through the serial numbers of the remaining keyfobs that the panel has learned.

Once you have chosen the keyfob you wish to edit, the View/Edit Keyfob Menu appears. It includes the topics listed in the table.

Topic	Range	Default
1. User Number	1-92	First available user number

To delete a keyfob, choose item 2 (Select keyfob), then specify the keyfob which you wish to delete. Next, choose item 3 (Delete keyfob). When prompted, confirm that you wish to delete the device. (See page 51 for more detailed instructions.)

9.6.5 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 48. 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 52.

9.6.6 Home Menu Option 6: Upload Config (Configuration)

Fifteen minutes after you leave the installer programming mode, the BHS-4000B automatically reports programming changes to the central database. The call is completely automated. During this call, the panel synchronizes its clock with the server's.

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

9.6.7 Home Menu Option 7: Browse Events

Option 7 of the Home Menu allows you to view the events stored in the panel's memory. For additional information about this option, see page 52.

9.6.8 Home Menu Option 8: Set Time

Option 8 of the Home Menu allows you to set the Time and Date.

9.6.9 Home Menu Option 9: Diagnostics

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

- Battery VDC – Displays the current battery voltage
- Dialtone – Senses the dial tone, and checks to see if phone wires are connected
- Call statistic – Keeps a record of communications with Vivaldi. Displays a record of Good data, Bad data and Duration of time on the phone line.

9.7 Lists A-G, programmable options

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

9.7.1 List A: Communicator type Each of the system's communicators can be programmed in one of the following ways: • Unconfigured • SIA • Numeric Pager • Barran Radio SIA • Barran Radio Email • GSM SIA • GSM Email • IP SIA • IP Email	9.7.2 List B: Zone types A zone can be configured in any of the following ways: • Unconfigured • Entry/Exit • Exit Force Arm • Instant • Follower • Day/Night* • Medical* • Assault* • Silent Assault* • Auxiliary* • Duress* • Follower Delay • Fire • Local* • Carbon Monoxide*	9.7.3 List C: Circuit types A circuit can be configured in any of the following ways: • EOL • Normally Opened • Normally Closed • Supervised • Burg Trbl (Trouble)
9.7.4 List D: Output patterns 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 • Toggle (Trigger Outputs only)	9.7.5 List E: Zone Classes When programming a relay, you must specify in which class of zones the triggering event must occur. The available options are: • Any • None • Burglary • Fire • Gas • Panic • Medical • Auxiliary	9.7.6 List F: Automatic event triggers A relay can be triggered by the following automatic events: • Disabled (Default) • Zone Alarm • Zone Alarm Restore • Zone Fault • Zone Fault Restore • Zone Trouble • Zone Trouble Restore • User Code Entry • Input Fault • Input Fault Restore • Keyfob Button Down • Ready to Arm • Not Ready to Arm • Exit Delay Start • Exit Delay End • Entry Delay Start • Entry Delay End • Alarm Output Trouble • Alarm Output Trouble Restore • Area Armed • Area Disarmed • Keypad key held more than three seconds • Zone Alarm Reset • Time of Day
9.7.7 List G: EOL Values When programming an on-board zone to operate with an End-of-Line resistor, you can specify the value of resistor to be used. The options are: • 680 Ohm • 1.0K Ohm • 2.2K Ohm • 3.3K Ohm • 4.7K Ohm* • 5.6K Ohm • 6.8K Ohm • 10K Ohm • 22K Ohm • 33K Ohm *NOTE: You must choose the 4.7K Ohm value for ZEM zones.	9.7.8 List H: Zone types by Class Zone types are classified as follows: • Burglary: Exit/Entry, Exit Force Arm, Instant, Follower, Day/Night*, Follower Delay, Local* • Fire: Fire • Gas: Carbon Monoxide* • Panic: Assault*, Silent Assault*, Duress* • Medical: Medical* • Auxiliary: Auxiliary*	*If these 24-Hour zone types are faulted and stay faulted for longer than 24 continuous hours, a trouble will be indicated and annunciated at the keypad. Additionally, except for Local zone types, a trouble message will be sent to the Central Station (if programmed to do so).

9.7.9 Automatic zone configurations

In some cases, selecting one programming option causes the programmer to reconfigure the settings of certain other programming options automatically. As discussed below, this applies to zone configurations and pager reporting. 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 ¹	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 s	Yes
2. Entry/Exit Force Arm	Garage Door	No	Yes	No	Yes	Steady	5 min	180 s	Yes
3. Instant	Window	No	Yes	No	Yes	Steady	5 min	0 s	Yes
4. Follower	Motion	No	No	Yes	Yes	Steady	5 min	0 s	Yes
5. Day/Night	Gun Cabinet or Line Cut (Zone 255)	No	No	No	Yes	Steady	5 min	0 s	Yes
6. Medical	Medical Emergency	No	No	No	No	Pulsing	5 min	0 s	No
7. Assault	Hold up or Police Emergency (Zone 254)	No	No	No	No	Silent	0 (=Indefinite /Latched)	0 s	No
8. Silent Assault	Silent Holdup	No	No	No	No	Silent	0 (=Indefinite /Latched)	0 s	No
9. Auxiliary	Auxiliary	No	No	No	Yes	Silent	0 min	0 s	Yes
10. Duress	Duress	No	No	No	No	Silent	0 (=Indefinite /Latched)	0 s	No
11. Follow Delay	Motion	No	No	Yes	Yes	Steady	5 min	20 s	Yes
12. Fire	Smoke Detector or Fire Emergency (Zone 252)	Yes	No	No	No	Temp Code 3 USA	0 (=Indefinite /Latched)	0 s	No
13. Local	Local	No	No	No	No	Blast (1 s)	0 min	0 s	No
14. Carbon Monoxide	Carbon Monoxide Detector	No	No	No	No	Pulsing	0 (=Indefinite /Latched)	0 s	No

¹ The Trouble Reporting program option is not applicable to RF transmitters.

9.8 Remote programming

The BHS-4000B can be programmed remotely. For instructions, contact the Customer Service Downloading department.

9.9 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 4-4-1. Those numbers—4-4-1—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-4000B's shortcuts are listed in Appendix D.

10 System testing and maintenance

10.1 System

You can test the system, zones and RF sensors by selecting Option 5: Test Menu from the Home Menu.

If there are one or more RF Receivers and wireless transmitters in the system, the transmitters must be qualified before you can enter Installer Test mode. All transmitters should be qualified in their mounting location before they are permanently mounted. To qualify the RF sensors, refer to section 10.1.1 .

10.1.1 RF Sensor Qualification

The RF Sensor qualification test checks receiver noise measurements (interference level, noise floor and jamming levels). Once the noise floor is established, each transmitter is tested to verify sufficient signal-to-noise ratio, and that a minimum number of transmissions sent by the transmitters are received.

To run the RF Sensor Qualification test, do the following:

1. From the Home Menu, select the Test Menu option, and then select RF Sensor qual., and press **[Enter]**. The system will check for "ambient" noise, and will establish an average noise floor reference for each receiver.
2. The system will cycle through any RF transmitter that has not been qualified.

When a transmitter passes the tests, the system siren will sound, and the sensor will be qualified.

For any RF sensor that fails the tests, the programmer will display the type of problem encountered.

Excessive Noise Floor

If any of the system receivers exceeds the Noise Floor requirement, the following example is the type of message that appears ("x" will be filled in with a numerical value):

```
Rcvr#xxx Noisy
GUID: xxxxxxxx
Please correct
<Press any key>
```

Transmitter Qualification Failure

The programmer identifies the transmitter(s) that fail, the actual signal-to-qualification ratio, and the number of transmission rounds received. The message **No signal yet** will appear until the transmitter signal is received and processed. Then the following message appears:

```
Zone x.x.x
Device #xxx
SQR: xxBB  xx%
Current Status*
```

*Current Status will be one of the following:
QUALIFIED (the transmitter is qualified)
Failed

If the transmitter didn't qualify, try changing the transmitter's location slightly and fault again. In some cases, it may be necessary to add another receiver to the system to improve the reception of the out-of-range transmitters.

When all RF transmitters are qualified, you can enter the Installer Test mode.

10.1.2 Installer testing

You can test all of the system's programmed zones, including the soft-zones, in the programmer's Installer Test mode. If the system's siren is supervised, that is tested as well. During the test, the events are periodically reported to the central station, to test the system's reporting functions as well.

If the panel fails to detect that a zone has been faulted and restored, or that the siren has not been disconnected and reconnected during the installer test, inspect the wiring of those devices for shorts or broken connections and test the peripherals for other malfunctions.

To conduct an installer test, do the following:

1. Connect the handheld programmer to the programming port (J3) of the panel or any bus device. Enter installer programming.
2. From the Home Menu, select **Option 5: Test Menu**. Then select option 2 **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. 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 Window
```

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.

5. If the system is not programmed for siren supervision, the test moves to step 6. If it is programmed for siren supervision, however, the display now reads:

```
Installer test
Disconnect Siren
```

Disconnect the siren from the panel. When the panel detects that the siren has been disconnected, the display reads:

Installer test
Reconnect Siren

Reconnect the siren to the panel.

6. 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.)

Note

If the system you are testing contains more than one smoke detector, test them as follows:

If all of the detectors occupy one zone: trip each detector in succession. When the first detector is tripped and restored, the system's sounders return to normal operation.

If the detectors occupy more than one zone: trip each detector in succession, but wait 20 seconds between trips to allow the previous detector to restore. The Installer Test report indicates each detector that was faulted.

10.1.3 Replacing a panel

To replace a defective panel, do the following:

1. Make a note of the existing panel's Panel Identification number. This is the 12-digit number printed on a bar code sticker affixed near the center of the panel's PCB. The number is also referred to as the Globally Unique Identification number (GUID).
2. Disconnect all power to the system, then install the new panel.
3. Reapply power to the system. Connect the handheld programmer to the programming port of the new panel or any of its bus devices. Enter installer programming. When you see the following screen at startup, press **[1]**.

If this screen does not appear, default the panel and enter installer programming again to make the screen appear.

Replace panel?
1=Yes 2=No

4. When prompted, enter the last eight digits of the Panel Identification Number of the original panel.

5. Three methods of communication are available: Phone line, GSM radio, or Internet (IP radio). Depending on the method used, different screens will appear.

Thru Phone Line?
1=Yes 2=No

For phone line communication, press **[1]** and then enter the phone number of the Downloader. Enter the dial prefix, area code and the host phone number, and the download will begin.

For GSM communication, press **[2]**, and the following screen appears:

Thru GSM?
1=Yes 2=No

Press **[1]** to select GSM radio communication. Then enter the host server IP address and port number, and the download will begin.

For IP communication, press **[2]**, and see:

Thru Internet?
1=Yes 2=No

Press **[1]** and the following screen appears:

IP (blank = DHCP)

For dynamic (DHCP) Internet addressing, leave it blank, and press **[Enter]**. Next, enter the IP address and port number of the download server.

Otherwise, enter the DHCP routing information, starting with the Internet module's IP address, then a network mask, gateway IP address and primary DNS IP address.

After all parameters are entered and verified, the download will begin.

Alternately, press **[2]** to cancel the panel replacement process and return to the Home menu.

10.1.4 Pre-test system reporting

You can test the system's reporting functions by conducting a 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. **Icon keypad:** press the OPTIONS key until the icon display reads TEST ENTER CODE.
LED keypad: press the OPTIONS, then the 5 key.
3. Enter a valid user code. The system sends a SIA test message.

- 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 54.)

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

10.1.5 Setting the system's clock

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

The Downloader automatically adjusts the panel's clock to reflect the time zone in which the customer resides. The Downloader also assumes that the panel 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" to prevent discrepancies during these periods.

By default, the system's icon keypads display the current time in their numeric displays when the system is otherwise idle. To disable the clock's display, program the Display Time programming topic "no." The customer cannot set or adjust the keypad's clock.

Neither the handheld programmer nor the LED keypad can display the time.

The system's clock can also be adjusted through Menu Option 8: Set Time.

10.2 Maintaining sensors

10.2.1 Replacing a sensor

To replace a defective sensor, do the following:

- Remove AC and DC power from the system.
- Install the new sensor, configuring it the same way the existing device was configured.
- Reapply AC and DC power to the system.

10.2.2 Adding a sensor

To add a new sensor to the system, do the following:

- Remove AC and DC power from the system.
- Install the new sensor.
- Reapply AC and DC power to the system.
- Program the sensor's zone.

10.2.3 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.

10.2.4 Resetting AUX power

Any sensor with a latching output that is not connected to a fire zone must be reset after an alarm. Glassbreak detectors are one type of sensor that typically has a latching output. The reset process removes power to the sensor, clearing the sensor's alarm memory. To reset the system's auxiliary power, disarm the system then press and hold the **[0]** key for ten seconds.

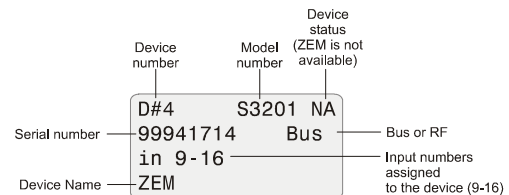
10.3 Maintaining peripheral devices

10.3.1 Replacing a peripheral device

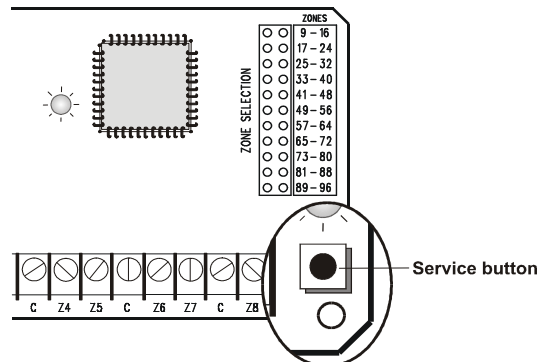
To replace a defective peripheral device, do the following:

- Connect the handheld programmer to the programming port (J3) of the panel or any bus device. Enter installer programming.
- Browse the list of learned devices to identify the device in need of replacement. Look for the serial number of the device you wish to replace. You can find the serial number on a label on the device's PCB.

If the device is not communicating with the panel, the upper right-hand corner of the programmer's display reads "NA" ("Not Available"), as in the example below.

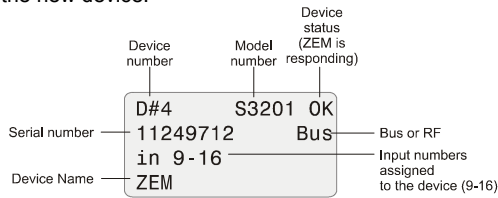


- Remove power from the system. Install the new device, wiring it the same way the existing device was wired. If you are replacing a ZEM, be sure to set the addressing jumper to the same location as the original ZEM.
- Restore power to the system. Enter installer programming again. From the Home Menu, choose **Advanced Programming | Device | View/Edit Device**. Select the device you wish to replace, then select **Replace Device**.
- Press the Service Button (shown below) on the new peripheral device. This broadcasts the devices' serial number to the panel.



Press Service Button to replace device (shown here on an ZEM)

The programmer's display indicates the serial number of the new device:



- Press any key on the programmer to end the device set-up procedure.

10.3.2 Adding a peripheral device

To add a new peripheral device to the system, do the following:

- Remove AC and DC power from the system.
- Install the new device. If you are adding a ZEM, set the addressing jumper to lowest setting that is not used by any of the existing ZEMs.
- Reapply AC and DC power to the system.
- Connect the handheld programmer to the programming port (J3) of the panel or any bus device. Enter installer programming.
- From the Home Menu, choose **Option 2: Learn Devices**. When the panel has completed the learn process, scroll through the list of learned devices to verify that the new device is listed. If it is not, verify the system's connections and repeat the learn process.
- Program the device as needed (for example, configuring the zones of a new ZEM, or setting the exit delay of a new keypad, etc.)

10.3.3 Deleting a peripheral device

To delete a peripheral device from the system, do the following:

- From the Home Menu, choose **Advanced Menu**, then select **Option 2: Device Menu** and press **[Enter]**.
- Use the **[↑]** and **[↓]** keys, to scroll through the list to the device you want to delete and press **[Enter]**.
- Select **Delete Device** and press **[Enter]**. The programmer asks you to confirm your choice; press **[1]** (yes) to proceed with the deletion, (or **[2]** (no) to stop).

10.3.4 Deleting an S3120 keyfob

To delete a lost or inoperative S3120 keyfob, do the following:

- Connect the handheld programmer to the programming port (J3) of the panel. Enter installer programming.
- From the Home Menu, choose **Advanced Programming | Fob Menu | Delete fob**. Select the keyfob 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 keyfob is deleted, the programmer displays the keyfob menu.
- If you are replacing the keyfob, learn a new keyfob as described on page 35.

11 Troubleshooting

11.1 Browse events

The BHS-4000B system stores more than 1000 events in its event memory. You can review these events in installer programming. From the handheld programmer's Home Menu, select **Option 7: Browse Events**. The programmer displays the following list:

```

EVNT BROWSE MENU
1 Browse Oldest
2 Browse Newest
8 View Upload
9 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. The programmer continues to cycle through the list until you exit the browser by pressing the [**Esc**] key.

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

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

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

Line on which code appears	Code	Significance
2	–	The event was not reported by this Comm
	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:

```

0300:14      03/17/08
-- P - R - F - A1 Syst
em error:    Power-
on reset
  
```

The first line of the display indicates that the event occurred 14 seconds after three AM on March 17, 2008.

The second line of the display indicates whether the event was successfully reported by the system's communicators. Each of the eight spaces in the line represents one of the eight available communicators or Comms. The character that occupies the first space summarizes how the event was communicated by Comm 1. The second character in the line refers to Comm 2 and so on. Thus, in the example above, the event was not reported by Comms 1, 2, 4, 6 or 8. The event is pending for Comm 3, was reported by Comm 5 and failed to report by Comm 7.

The A1 on line two indicates that the signals came from Account or partition 1. A2 would indicate Account or partition 2 and so on.

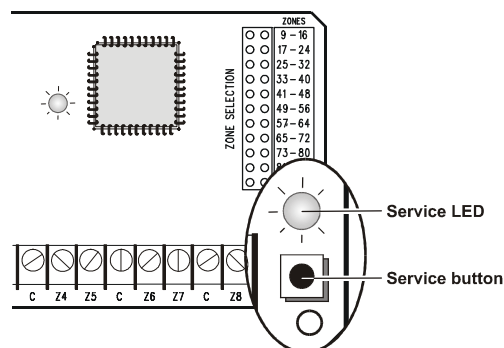
The rest of line two and lines three and four describe the type of event. In this case "System error: Power-on reset."

11.2 System information

11.2.1 Determining system status

The Service LED found on the system's bus blinks at different rates to indicate whether the bus device is configured, and whether the panel is polling.

Refer to the device PCB illustrations throughout this manual for the Service LED location.



Service LED, shown here on a ZEM

The LED blinks one to five times, pausing for two seconds before repeating the pattern. To determine the system's status, count the number of blinks, and compare it to the table that follows.

Blinks*	Significance	
	Is device configured?	With which bus devices is the panel able to communicate?
1	Yes	This device
2	Yes	Other devices only
3	Yes	Panel not polling
4	No	Other devices only
5	No	Panel not polling

*Cadence:

500 milliseconds on, 500 milliseconds off, repeated one to five times, then off 2 seconds.

11.2.2 Determining a zone number

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

1. Connect the programmer to the panel or to any bus device. Enter installer programming. Choose **Advanced Menu | Zone Finder**.
2. Wait until the programmer's display reads "Ready."
3. Fault the zone.
4. Observe the number displayed by the programmer. 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.

11.2.3 Determining the device number

Each bus device (except the TCM) is automatically assigned a random device number, or polling address, during the Learn Devices procedure. You can obtain the Device ID by doing the following:

1. Press the device's Service Button*.
2. The Service LED* blinks the Device ID in a decimal format. Zeros are indicated with a continuous two-second pulse; digits are separated by a one-second pause. A 2.5-second pause indicates the end of the number.

The example below shows how the device number 10 would be broadcast:

LED action	Significance
1 pulse	1
1 second pause	end of digit
2 second pulse	0
2.5 second pause	End of Device ID number

*Note: See device illustrations throughout the manual for Service Button and Service LED locations. For keyfob receivers and keypads, the Service Buttons and Service LEDs are located in the lower right-hand corner of the PCBs.

11.2.4 Determining a device's firmware version

You can identify the version of firmware that is installed in any of the system's bus devices by doing the following:

1. Connect the programmer to the panel or to any bus device. Enter installer programming.
2. Choose **Advanced Menu | Device Menu**.
3. Select the device whose firmware version you wish to identify.
4. Choose **| View/Edit Device | Version**. You see something like this:

```
Fw version 00.05
Hdw setting 0000
<Press any key>
```

The firmware version is the number on the first line of the display. The second line of the display indicates the configuration of any jumpers on the device; this applies only to the ZEM and is discussed in the following section.

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

11.2.5 Determining a device's hardware setting

You can use the programmer to determine the setting of a jumper on a bus device. Of all the bus devices supported by the BHS-4000B, only the ZEM has such a jumper.

To determine a bus device's hardware setting, do the following:

1. Connect the programmer to the panel or to any bus device. Enter installer programming.
2. Choose **Advanced Menu | Device Menu**.
3. Select the ZEM whose hardware setting you wish to identify.
4. Choose **| View/Edit Device | Version**. You see something like this:

```
Fw version 00.05
Hdw setting 0050
<Press any key>
```

The second line of the display indicates the jumper position. Compare the number displayed to the chart below to determine which of the possible 11 positions the jumper occupies.

Jumper Position	Zones	Hardware Setting
● ● 1	9-16	0008
● ● 2	17-24	0010
● ● 3	25-32	0018
● ● 4	33-40	0020
● ● 5	41-48	0028
● ● 6	49-56	0030
● ● 7	57-64	0038
● ● 8	65-72	0040
● ● 9	73-80	0048
● ● 10	81-88	0050
● ● 11	89-96	0058

The sample programmer display above indicates that the ZEM has the hardware setting "0050." As the table shows, this means that the ZEM's jumper is set in position 10, and that this position corresponds to zones 81-88.

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

11.3 Troubleshooting specific problems

11.3.1 System will not initialize

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

Indications: None of the system components operate properly.

Possible causes:

- The backup battery may be defective.
- The transformer may be defective.
- The breaker switch may be thrown.
- A peripheral device may be defective.
- The panel needs to be reset to default state.

Solutions:

- If the battery or transformer is defective, replace it. (Disconnect the electrical power to the panel before investigating.)
- Move the breaker switch to the ON position.
- Remove all keypads and attempt to initialize the system. If successful, reconnect the keypads one at a time, replacing any keypad that does not work.
- Remove all devices connected to AUX power and attempt to initialize the system. If successful, reconnect the devices one at a time, replacing any one that does not work.
- If none of these solve the problem, refer to section 11.3.8 to reformat (default) the panel by shorting the J7 jumper pins.
- If none of these solve the problem, replace the panel.

11.3.2 Bus device does not work at startup

Condition: When first installed, a system's bus device is not able to communicate with the control panel.

Indications:

- The device does not respond when a key is pressed.
- As applicable, the device's LEDs are not lit.
- The device does not appear on the programmer's list of learned devices.

Possible causes:

- The device is improperly wired.
- The wires are damaged.

Solutions:

- Verify that the panel is receiving power at the AC inputs.
- Verify the wiring connections match those shown on page 10, replacing any wires that are damaged.
- If none of these solve the problem, replace the device.

11.3.3 Bus device stops communicating

Condition: One or more of the system's bus devices are no longer able to communicate with the control panel. The device(s) previously operated properly.

Indications:

- If the device is a keypad, the siren clicks twice, then pauses for three seconds. (The user can silence this by pressing the CANCEL key on an operative keypad.)
- The programmer's list of learned devices shows the device is "NA" (not available).
- The device may be unresponsive to commands, or unreceptive to signals.
- If trouble reporting is enabled, the system reports a trouble condition to the central station. The trouble report contains the Device ID and a failure code.

Possible causes:

- The device's wires may have been damaged.
- The device's hardware may be damaged.

Solutions:

- Replace or repair any damaged wiring.
- If the device is malfunctioning, replace it.

11.3.4 Trouble condition on startup

Condition: When the system is powered up while a zone is faulted, a trouble condition is identified on that zone. This applies to any zone, if the system was armed at the time power was lost.

Indications:

The keypad identifies a trouble condition on a zone at startup.

Possible causes:

- As the table below shows, the zone was faulted during the first five seconds of zone scanning after startup.

Panel State	Type of zone faulted during first 5 seconds of power-up	Resulting zone condition on power-up
Armed (On)	24-hour	Trouble
	Burglary	Trouble
Disarmed (Off)	24-hour	Trouble
	Burglary	Not ready

- The zone was in alarm when the system was powered down and is still faulted when power is restored.
- An independent trouble condition exists on the zone.

Solutions:

- Allow the zone a short time to restore itself.
- If the zone is faulted, correct the fault.
- Look for and correct wiring problems or other sources of a trouble condition.

The trouble and trouble restoral conditions are reported (unless the Trouble Reports topic is disabled).

11.3.5 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 panel is out.
- The telco interface is improperly wired.
- The panel is improperly programmed.

Solutions:

- Test reporting when telephone service has resumed.
- Verify the wiring connections match those shown on page 11, and replace any wires that are damaged.
- Verify that the system is programmed as follows:
 - the communicator is properly configured;
 - the communicator's telephone number is properly programmed;
 - test reporting is enabled;
 - the panel's account mode is correctly configured.

11.3.6 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 panel 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:
 - the communicator is properly configured;
 - the communicator's telephone number is properly programmed;
 - the zone is programmed to report that type of event to the communicator;
 - the panel's Account Mode topic is not programmed for local fire or local burglary.

11.3.7 Siren does not sound

Condition: The siren is malfunctioning.

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

Possible causes:

- The siren is improperly wired.
- The current to the siren during an alarm is too low.
- The panel is improperly programmed.

Solutions:

- Verify the wiring connections match those shown on page 13. Replace any wires that are damaged.
- Disconnect the siren, generate an alarm, and measure the voltage across the SIREN and common terminals. The voltage should be between 4-6 VAC.
- Verify that the system is programmed as follows:
 - the alarm cadence is correct;
 - the alarm cutoff time is correct;
 - the Warble Siren and the various Cutoff Minutes programming topics are not programmed incorrectly.

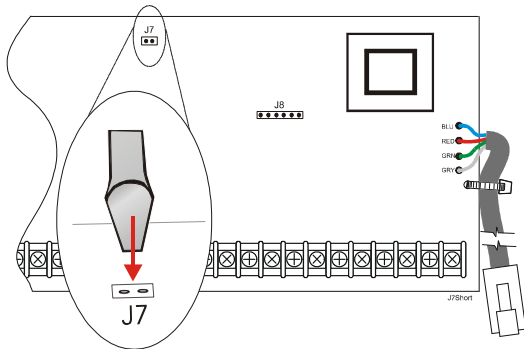
- Measure the resistance of the siren. It should be between 3 and 15 Ohm.
- If these solutions are not effective, replace the siren.

11.3.8 Handheld programmer is broken or missing

Condition: A new system needs to be programmed, but the handheld programmer is broken or missing.

Solution: Configure the system remotely, following the procedure described below: (**Note:** you cannot use this procedure if the site's telephone system requires that you dial a prefix to gain access an outside telephone line.)

1. Install the system and all the required devices.
2. Place a screwdriver across J7, then apply power to the system.



Short J7 during power-up

3. When the system has power, **keep screwdriver on J7 for 10 seconds**, then remove the screwdriver.
4. Wait while the control panel restores the system's default programming and learns all the system's devices. When this is completed, the keypads' ON LEDs flash at a fast rate.
5. At the keypad, enter the four or five digit Communicator 1 Report Account Number. Press the Options key. The keypad beeps once to indicate that it has written the number into memory.
6. Enter the eleven-digit telephone number for the Brink's Monitoring Center into the keypad. The number includes the 1(800) XXX-XXXX sequence. Press the Options key. The keypad beeps once to indicate that it has written this number into memory.
7. The control panel then contacts the valid Downloader software and uploads the panel's programming. At that point, an operator can revise the panel's programming at the central station and download that programming to the panel.

11.3.9 System does not recognize a ZEM

Condition: The system does not recognize one of its ZEMs.

Indications: The system does not allow you to create and program zones for one of the system's ZEMs.

Possible causes:

- The ZEM is not properly wired.
- The ZEM's zone selection jumper is improperly positioned.
- The ZEM may not have been learned during the Learn Devices process.

- The ZEM may be damaged.

Solutions:

- Verify the wiring connections match those shown on page 11. Replace any wires that are damaged.
- Verify that the zone selection jumper is in place, and that it does not occupy the same position as the jumper on another system ZEM. You can do this either by physically inspecting the ZEMs, or by comparing the jumper settings in the list of learned devices, using the handheld programmer. If the jumpers of two ZEMs are in the same position, move one to a location that is not occupied by another ZEM jumper, then select learn devices again.
- Repeat the Learn Devices process.
- If these solutions are not effective, replace the ZEM.

11.3.10 Keyfob not working

Condition: A system keyfob does not work.

Indications:

The system does not respond to the commands of a keyfob.

Possible causes:

- The keyfob or the keyfob receiver was not properly programmed,
- The customer has deleted the keyfob's user code.
- The keyfob's battery needs replacing.
- The keyfob is defective.
- The keyfob is out of range.
- The keyfob'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.
- The keyfob receiver is not communicating with the panel.

Solutions:

- Verify that you have both learned the keyfob and created a user code for that keyfob.
- Verify that the keyfob receiver was properly learned. (If the receiver is working with other system keyfobs, you can skip this step.)
- Watch the keyfob's Battery Indicator LED as you press and hold the red ON button for five seconds. (Not applicable to 5804E keyfobs.) If the LED blinks or fails to light, replace the battery. If the LED is steadily lit, the battery is good. (The keyfob takes one A23 battery.)
- Attempt to arm the system while standing in front of the keypad. If the keyfob'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 keyfob learning sequence described on page 35.
- Open the receiver and repeat the keyfob test. Verify that the receiver's status LEDs show the appropriate responses to the keyfob commands. [For the appropriate LED functions, see page 17 (or page 19 for BHS-3250)] If the keyfob's signals are not being received in a portion of the house, consider adding a second keyfob receiver in that area. If applicable, remind the customer of the keyfob's range.
- Correct any not-ready conditions, then try to use the keyfob again.
- Look for and correct problems with the receiver's wiring. (If the receiver is working with other system keyfobs, you can skip this step.)
- If the receiver is working properly, replace the keyfob. (See page 51 for instructions.) If the receiver is not working properly, replace it and reprogram the receiver and all the keyfobs. (See page 50 for instructions.)

11.4 Icon 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.
LOW BATT, CALL (800) 445-0872	The backup battery's voltage has dropped below 11.9 V.	Allow the battery 24 hours to recharge. If problem persists, replace the battery.
NO AC	The AC power to the panel has been lost.	If there is electrical power to the building, check and reset the circuit breaker. Verify the transformer wiring. Repair/replace wiring, or transformer. Replace control panel.
TROUBLE, CALL (800) 445-0872. In addition, the display reads "CP."	Communication failure. The panel could not make a report to the central station.	Verify the telephone service is working. Verify wiring connections. Replace any defective wires. If the system has a Barran Reporting Module, verify that it is working. Replace control panel, if necessary.
TROUBLE, CALL (800) 445-0872. Also, the display reads "CS."	Siren supervisory failure. A wiring, communication, or power problem.	Verify the wire connections. Replace any defective wires. Replace siren or panel, as necessary.
TROUBLE, CALL (800) 445-0872. The display also shows "CF."	Device supervisory problem. Caused by wiring, power, or communication problem.	Verify the wire connections. Replace peripheral device or panel, as necessary.
TROUBLE, CALL (800) 445-0872. In addition, the display reads "CH."	Host failure. The control panel could not complete a call to the Downloader.	Verify the telephone service is working. Verify the panel programming. Verify wiring connections. Replace any defective wires. Replace control panel, 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, wireless phones or devices, etc.) and turn them off.
TROUBLE, CALL (800) 445-0872. In addition, the display reads "CL."	Radio communication failure. The panel was unable to register to the radio tower.	Check the signal strength with the programmer. Relocate the radio module, if necessary.
ZONE NUMBER TROUBLE	Trouble on zone.	If the trouble follows a canceled fire alarm, allow time for any airborne particles to disperse. Replace the detector if necessary.
TROUBLE, LOW BATT	The Transmitter indicated the battery needs to be replaced.	Change the battery.
TROUBLE, CALL (800) 445-0872. Also, the display reads "CC."	GSM SIM card failure. The SIM card is either missing or damaged.	Check if SIM card is present or installed properly. If SIM card is damaged, replace it.
TROUBLE, CALL (800) 445-0872. Also, the display reads "CI."	GSM or internet network failure.	For IP module, check network connection. Check if the cable is connected and verify network communications. For GSM module, check signal strength with the programmer. Relocate the GSM module, if necessary.
TROUBLE, CALL (800) 445-0872. Also, the display reads "CE."	GSM or internet module case tamper.	Check that the case is closed properly.

11.5 LED keypad service messages

When a trouble condition exists, the TROUBLE LED of the LED keypad either lights or blinks. This section tells you how to interpret and correct the trouble messages.

Steadily lit Trouble LED. This indicates that one of a number of trouble conditions exists. To identify whether any of the first eight conditions exist, press the OPTIONS key, then the 9 key. A zone LED blinks. Compare the blinking zone LED to the table below to determine which trouble condition exists:

Blinking LED	Message	Correction
1	Low battery. The backup battery has dropped below 11.9 VDC.	Allow the battery 24 hours to recharge. If the problem persists, replace the battery.
2	Communication failure. The system could not complete a report to the central station.	Verify the telephone service is working. Verify the panel programming. Verify wiring connections. Replace any defective wires. Replace control panel, if necessary.
3	Trouble on zone.	If the trouble follows a canceled fire alarm, allow time for any smoke particles to disperse. Replace the detector, if necessary.
4	Call Brink's at 1 (800) 445-0872.	Call Brink's Customer Care.
5	Component failure indication. A communication, wiring, or power problem.	Verify the wire connections. Replace any defective wires. Replace keypad or panel, as necessary.
6	Siren supervisory failure. A wiring, communication, or power problem.	Verify the wire connections. Replace any defective wires. Replace siren or panel, as necessary.
8	Line cut. The telephone line has been cut, or service is interrupted.	Hang up all telephones. If the telephone service is interrupted, instruct the customer to call the telephone company.

To identify whether additional conditions exist, press the OPTIONS key and the 9 key again. If the system returns to its normal state, no additional trouble conditions exist. If one of the zone LEDs blink, refer to the table below to determine which trouble condition exists:

Blinking LED	Message	Correction
1	Host failure. The control panel could not complete a call to the Downloader.	Verify the telephone service is working. Verify the panel programming. Verify wiring connections. Replace any defective wires. Replace control panel, if necessary.
2	AC Failure. The AC power to the panel has been lost.	If there is electrical power to the building, check and reset the circuit breaker. Verify the transformer wiring. Repair/replace wiring, or transformer. If AC is present across terminal 1 and 2, then replace control panel.
3	Smart Key Low Battery.	Replace the battery.
4	Radio communication problem. The system was unable to register to the radio tower.	Check the signal strength. If necessary, try a higher gain antenna or relocate the radio module.
5	GSM SIM card failure.	Check if SIM card is present or installed properly. If SIM card is damaged, replace it.

Blinking LED	Message	Correction
6	GSM or Internet network failure.	For IP module, check network connection. Check if the cable is connected and verify network communications. For GSM module, check signal strength with the programmer. Relocate the GSM module, if necessary.

Blinking LED	Message	Correction
7	GSM or Internet module case tamper.	Check that the case is closed properly.

12 Compliance information

12.1 UL/CUL Compliance

12.1.1 Residential Listings (US and Canada)

When installed following the guidelines presented below, the BHS-4000B 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

The system also complies with the following Canadian listings:

- CAN/CUL-S545-M89 – Standard for Residential Fire Warning System Control Units
- UL 1023 – Household Burglar Alarm System Units

12.1.2 Hardware Guidelines

- Use only UL listed devices.
- Use recognized limited energy cables.
- Do not plug the transformer into a receptacle that is controlled by a switch. Use an approved transformer from the list below (according to location of installation):

Note: Part Numbers in italics = w/Ground Terminal

	US (UL Listed)	Canada (UL/CSA Listed)
Basler		
16.5V 25VA	BE116225CAA0002	BE116225AAA0024
16.5V 25VA	BE116225CAA0001	
16.5V 40VA	BE156240CAA0007	
UltraTech		
16.5V 40VA	<i>IM-16V 40VA</i>	<i>IM-16V 40VA</i>
16.5V 40VA	<i>E-HWA T16V40</i>	<i>E-HWA T16V40</i>
ELK		
16.5V 40VA	TRG1640	
Universal		
16.5VAC 40VA	UB1640W	
16.5VAC 25VA	UB1625B/US2	
16.5VAC 25VA	UB1625B/US3	UB1625B/CA3
Revere		
16.5VAC 40VA	RT-1640	

- Use one of the 12 VDC batteries listed below:

Premier 12VDC 4Ah	PT1245
Power Sonic 12VDC 5Ah	PS1250
Power Sonic 12VDC 7Ah	PS1270
Universal Battery 12VDC 7Ah	UB1270
Universal Battery 12VDC 4.5Ah	UB1245
Yuasa 12VDC 4Ah	NP4-12
Yuasa 12VDC 7Ah	NP7-12

- Battery backup requirement: Residential Fire (US & Canada), Home Health Care = 24 hour w/ 4 minute alarm time.
- Battery backup requirement: Residential Burglary (US & Canada) Commercial Burglary and DACT = 4 hour w/ 5-15 minute alarm time.
- Use Premier or Universal PTS-15 BHSW Range 4–16 Ohm speaker across the SIREN and Common terminals for Residential Fire and Burglary applications. For Canadian Residential Fire, use the Amseco MSB Series 12VDC bell. In a Multi Area system, these devices must be placed so that it can be heard in all areas as they are the primary sounding devices. The sounder on the 2112ATL smoke detector is a supplementary sounding device.
- Fire zones must use the System Sensor Model 2112ATL or 2112i3 smoke detector, ADEMCO 5808LST wireless smoke detector or other UL Listed 4-wire Smoke Detector with EOL Relay.
- Use the IntelliSense/Honeywell 9.X 4.7 K EOL resistors for all fire zones.
- Use 4.7K Ohm end-of-line resistors on all burglary zones.

- Do not exceed the maximum combined auxiliary, fire and keypad current (1.0A for a 25VA or 1.2A with a 40VA transformer, including alarm outputs).
- Do not exceed the maximum current draw for the Bell output (1 A). The primary sounding output device should be a siren for residential systems or a bell for commercial 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.
Note: The Keyfob and Keyfob Receiver have not been investigated by Underwriters Laboratories, Inc.

12.1.3 Programming Guidelines

To ensure that the BHS-4000B system is compliant with the Listings in Section 12.1.1, program the system as follows:

- Program each keypad's exit delay to be 120 seconds or less. (**Standard Menu | Set Exit Delay**)
- Program each entry delay for 45 seconds or less. (**Advanced Menu | Account | Area | Zone | Vw/Edt Zone | Entry Delay Time**) Program each Entry/Exit Zone individually.
- User Codes must be at least 3 digits long (**Advanced Menu | Account | Vw/Edt Acnt | User Code Length**).
- Siren Supervision must be enabled when using the siren output.
- Program all burglary sounding devices to operate for at least 4 minutes. (**Advanced Menu | Device | Vw/Edt Device 0 | Alarm outputs | Burglary Cutoff**) Set Medical Cutoff Time to a minimum of 5 minutes for Home Health Care applications.
- Burglary zones must be programmed as EOL and the Alarm output cadence must be steady.
- Fire zones (both hardwire and soft zones) must be programmed as supervised, with 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 panel to dial a police station.
- Do not program the panel to dial an emergency, police station, or fire alarm number.
- Program the fire alarm time-out for manual shutdown. (**Advanced Menu | Device | Vw/Edt Device 0 | Alarm outputs | Fire Cutoff**; program 0.)
- Program the dialing attempts for Comms 1 and 2 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 | Account | Vw/Edt Acnt | Test Interval Hrs**) In a multiple area system, it is only necessary to send the test interval on one of the area accounts since they share the same dialer.
- Program the panel 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.)
- Pager reporting can only be used as a supplementary method; primary reporting **must** be to a central station.
- Do not program a 24-hour zone to allow bypassing. (**Advanced Menu | Account | Area | Zone | Vw/Edt Zone | User Bypass**; and **Advanced Menu | Account | Area |**

Zone | Vw/Edt Zone | Motion Bypass; and Advanced Menu | Account | Area | Zone | Vw/Edt Zone | Special Bypass; program "no" for each 24-hour zone.)

- Disable the dialer delay. (**Advanced Menu | Account | Vw/Edt Acnt | Dialer Delay;** program for 0.)

12.1.4 Additional Guidelines for CUL installations

- Notify the local authority of the installation.
- Use recognized limited-energy cables for all devices. Refer to the Canadian Electrical Code, Part 1, for the use of the proper class of wiring.
- Refer to the following installation standards:
 1. CAN/CUL-540-M89 – Standard for the Installation of Residential Fire Warning Systems.
 2. CAN/ULC-S310-M91-standard for the Installation and Clarification of Residential Burglar Alarm Systems.

12.2 CSFM Compliance

12.2.1 Installation Guidelines

To install a BHS-4000B system that is compliant with the California State Fire Marshall residential fire installation requirements, use the following setup:

- Use a 12V 7Ah battery to ensure a backup time of 24 hours.
- Use the Premier or Universal PTS-15BHSW siren as the primary sounding device.
- Fire Verification Feature must be disabled.

12.3 Special Commercial Burglary Guidelines

12.3.1 Commercial Listings (US)

When installed following the guidelines presented below, the BHS-4000B system is compliant with these agency listings:

- UL 365 – Police Station Connected Burglar Alarms System Units and Systems
- UL 609 – Local Burglar Alarm Units and Systems

12.3.2 Installation Guidelines

To install a BHS-4000B system that meets the Commercial installation requirements, use the following setup:

General Guidelines:

- The medical and fire features / functions have not been listed for Commercial Mercantile applications.
- Zone response time cannot exceed 1 second. (Default: Follower and Follower Delay = 350mS, 150mS on all other zone types.
- Place a label over the Fire Emergency Key.

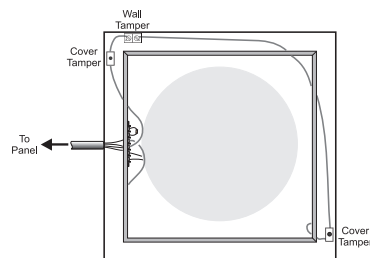
UL609 Local Mercantile Premises. Follow instructions for Commercial Enclosure per section 2.1.4.

- Use of the ADEMCO AB-12M and 2350-SUP is required for Commercial installations. (See illustrations for connection information and section 3.9.)
- Conduit connection must be made behind the AB-12M.

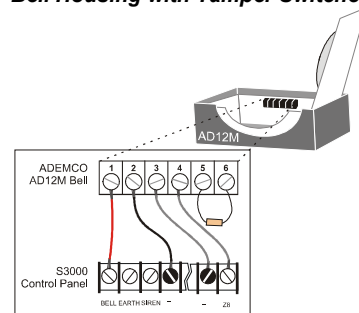
Additional requirements for UL609 Local Mercantile Safe & Vault:

- The BHS-4000B must be installed inside the complete vault, complete safe, or extend number 1 stockroom.
or
- The Sentrol 5402 shock sensor must be used on the enclosures back box. Follow the manufacturer's instructions on proper sensor mounting.

- A UL Listed contact must be used inside the cabinet through one of the knockouts for pry-off tamper purposes. Wire the shock sensor and pry-off tamper contacts to the same zone that supervises the panel's tamper switch.



Bell Housing with Tamper Switches



Wiring the Bell to the Panel

- Battery backup time: 4 hours
- Program zones for tamper switch as an EOL Day/Night Zone.

UL365 Police Station Connected Burglar Alarm

- Follow the instructions for UL609 Local Mercantile Premises.
- Enabling of the dialer is required.
- BHS-4000B must be able to report Burglary, Low battery, and Communicator test reports.
- Program the test reports to be sent once every 24 hours.

12.3.3 Programming Guidelines

- Bell ring back must be enabled (**Advanced Menu | Account Menu | Vw/Edt Acnt | Ring Back**) Note: Ring Back will sound a 1 second blast on Bell and Siren outputs at the completion of the Exit Delay.
- Alarm time: 15 minutes
- If siren is not used, disable supervision (**Advanced | Device Menu | Control Panel | Vw Edit | Alarm outputs | Supervised**).
- Entry delay must not exceed 45 seconds. (**Advanced Menu | Account | Area | Zone | Vw/Edt Zone | Entry Delay Time**) Program each Entry/Exit Zone individually.

12.3.4 Related Installation and Wiring Method References

- Commercial Burg. - UL 681 – Installation and Classification of Burglar and Holdup alarm systems.
- Commercial Burg. – UL611 – Standard for Central-Station Burglar-Alarm systems.
- Residential Burg. – UL 1641 – Installation and Classification of Residential Burglar Alarm Systems
- NFPA 70-1996

12.3.5 SIA Programming/Installation Guidelines

The BHS-4000B, which is marked with the integral UL/SIA label, complies with the Control Panel Standard ANSI/SIA CP-01-2000: Features for False Alarm Reduction.

NOTE: The partitioning (multi area) mode cannot be used for SIA classified installations.

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

Advanced Menu | Account Menu | Area Menu | Vw/Edt Area

Cross Zone Time: 20 seconds

Swinger Trips⁵: 1

Automatic Swinger Reset⁵: Disabled

Restoral Minutes⁵: Default is 5 minutes

Advanced Menu | Account Menu | Area Menu | Zone Menu | Vw/Edt Zone

Cross Zone Enable: Disabled

Swinger Bypass⁵: Enabled for Non-Fire zones, disabled for Fire zones.

Fire Verification Enable: Disabled.

Dialer Delay Enable: Enabled for Non-Fire zones, Disabled for Fire zones and CO zones.

Standard Menu

Exit Time: 60 seconds (Residential), 120 seconds (Commercial)

Entry Time: 30 seconds

Advanced Menu | Account Menu | Vw/Edt Acnt

Exit Time Restart: Enabled

Automatic Motion Off (Auto stay arm on unvacated premise feature): Enabled (System automatically arms with Motions Off if no Exit/Entry zone is opened during the Exit Delay countdown.)

Alarm Cancel: Enabled

Dialer Delay (Abort Window): 30 seconds

Double Dispatch: Enabled (Requires the user to press the Fire, Medical, or Panic emergency key twice within three seconds to trigger a soft zone alarm.)

Advanced Menu | Device Menu | (Keypad Device) | Vw/Edt Device | Keypads

Exit tone: Yes

Advanced | Comm Menu | Vw/Edt Comm

Exit Error Event Report: Enabled

Recent Closing Event Report: Enabled

Standard Menu | Zone/Panics

Duress (Code) Zone 256 – Disabled

Standard Menu | User Codes

Duress Code 95 – Blank

Standard Menu | Dial Prefix

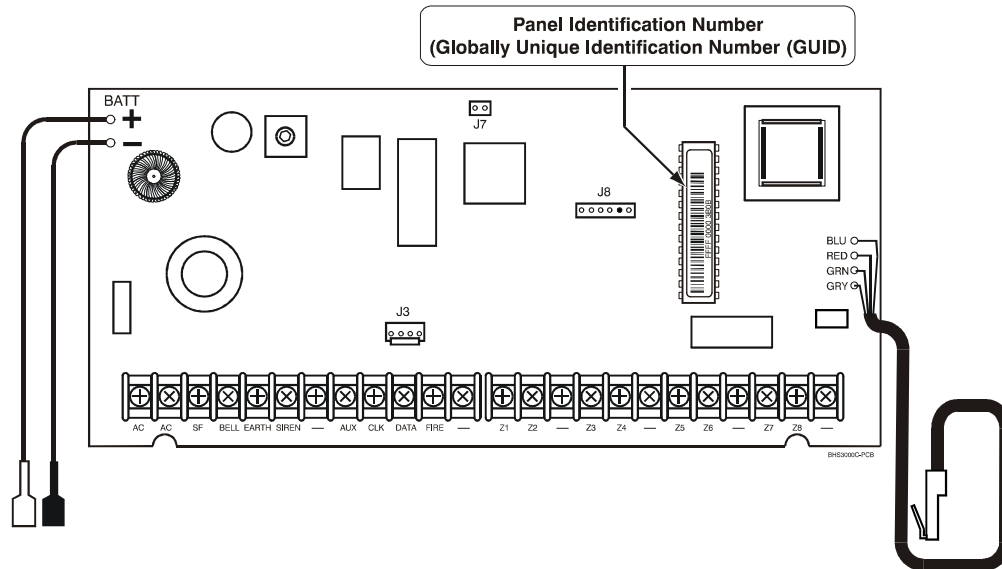
Area Blank – used to enter call waiting digits/characters and Voice-Over IP commands.

Additional Notes and Cautions:

1. The aggregate of the Entry Delay and Abort Window (Dialer Delay) shall not be programmed to exceed one minute.
2. ~~Caution:~~ A call waiting cancel on a non-call waiting line will prevent successful connection to the central station.
3. The panel will not allow Duress Codes to be programmed as an existing code plus one (+ 1).
4. Recent Closing interval is always enabled.
5. 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.
6. Additional keypads may be required so that Exit/Entry annunciations can be heard within the entire protected area.
7. System Test is initiated under the installer programming mode under **Test | Installer Test**. Indication of this mode on keypads is displayed by a fast flashing red ON LED on the keypads. A two-tone annunciation occurs to indicate that the test mode will automatically terminate within 5 minutes. Make sure all zones are functional before leaving the premises.
8. If Cross Zoning is enabled, do not Cross Zone Exit/ Entry and Fire zone types.
9. If more than eight (8) zones are being used, use the Premium (ICON) keypads.

13 Supplemental information

13.1 BHS-4000B main PCB board layout



BHS-4000B PCB

13.2 System specifications

Alarm output:	Internal siren, 4-8 Ohm
Auxiliary and fire power:	1.2 A
Bell output:	13.8 VDC
Transmission format:	DTMF or pulse
Keypad enclosure:	High-impact ABS plastic
Operating temperature:	0-50°C
Relative humidity:	0-95% non-condensing
Operating voltage:	16.5 V, 25 or 40 VA, Class 2 plug-in transformer
Panel enclosure:	16.5 gauge steel
Residential panel dimensions LxWxD):	38 x 32.3 x 7.8 cm 15 x 12.7 x 3 in
Commercial panel dimensions LxWxD):	47 x 38 x 11.2 cm 18.5 x 15 x 4.4 in
Residential panel weight:	2.85 kg 5.77 lb
Commercial panel weight:	7.85 kg 15.89 lb
Reporting format:	SIA Level 1
Ringer equivalence:	0.5B
Standby power:	12 VDC, 4 to 7 Ah lead-acid battery
Supervised zones:	4.7kOhm EOL
System test:	Automatic and/or manually initiated by the user/installer
UL compliance:	UL 365, UL 609, UL 985, UL 1023, UL1635, UL1637
CUL compliance:	CAN/ULC S545-M84 UL 1023
Zones on-board:	8
Zones, maximum:	96
Bus devices supported:	31

13.3 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
UL985: Residential Fire	24
UL 1023: Residential Burglary	4
UL365: Mercantile	4
UL609: Mercantile	4
UL1635: Mercantile	4
UL1637:Home Health Care	24
CAN/ULC – S545-MB9: Standard for Residential Fire Warning System Control Units	24
CAN/ULC – S303-M91	24
CAN/ULC – S304-M88	24

13.4 Accessory loading

13.4.1 Supply limits of output terminals

The table shows the amount of current that is available to system devices.

Output	Maximum current	UL Burglary ¹	UL/CUL Fire and health ²
Strobe /bell	1000 mA	1000 mA for 15 minutes	1000 mA for 15 minutes
Auxiliary	1000 mA	1000 mA ³	1000 mA ⁴
Fire	1000 mA	1000 mA ³	1000 mA ⁴

Notes to table:

1: UL 1023, 365, 609, 1635 (4 hour backup)

2: UL 1637, 985; CUL S45-M89 (24 hour backup)

3: Total combined power: 1500mA (4 hour backup)

4: Total combined power: 150mA (24 hour backup)

The table below shows the limits of the siren output.

Output	Nominal output	UL Burglary ¹	UL/CUL Fire and health ²
Siren	8-12 Ohm (4 Ohm minimum)	4 Ohm minimum for 15 minutes	4 Ohm minimum for 15 minutes

Notes to table:

1: UL 1023, 365, 609, 1635 (4 hour backup)

2: UL 1637, 985; CUL S5445-M89 (24 hour backup)

13.5 Zones: electrical definitions

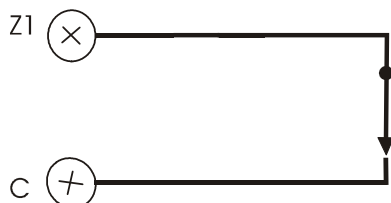
The BHS-4000B's hardwired zones can be configured in the these three ways: normally-closed, normally-open, and End-of-Line Resistor (EOL). Each is described below.

13.5.1 Normally-closed

This circuit type is normally used for magnetic contacts, or other circuits in which a number of sensors are wired in series.

The control panel interprets the circuit's states in the following manner:

Switch Position	Condition
Closed	Normal
Open	Faulted



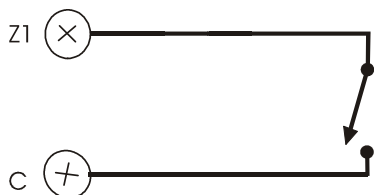
Normally-closed circuit

13.5.2 Normally-open

This loop type is normally used for applications where many sensors are wired in parallel. No EOL resistors are installed.

The control panel interprets the circuit's states in the following manner:

Switch Position	Condition
Closed	Faulted
Open	Normal



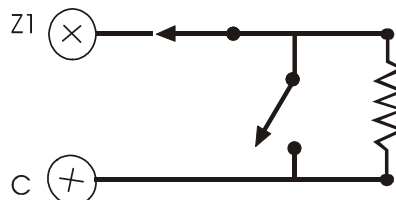
Normally-open circuit

13.5.3 End-of-Line Resistor (EOL)

This zone configuration must be used in UL installations. Motion sensors are typically wired in this manner. The configuration is used to supervise normally-open and normally-closed devices.

The control panel interprets the circuit's states in the following manner:

Circuit state	Condition
Short or open	Faulted
EOL detected	Normal



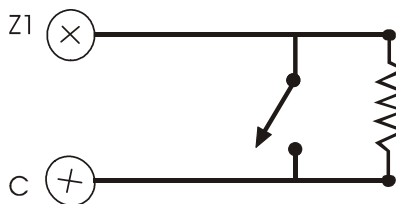
EOL circuit

13.5.4 Supervised with End-of-Line Resistor (EOL)

A supervised loop is electrically identical to the EOL loop. The difference is that, in this configuration, an open loop is considered a trouble condition. Smoke detectors are typically wired in this manner.

The control panel interprets the circuit's states in the following manner:

Circuit state	Condition
Short	Faulted
Open	Trouble
EOL detected	Normal



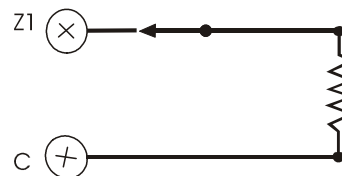
Supervised EOL circuit

13.5.5 Burglary trouble

A burglary trouble loop is the standard configuration for burglary zones.

The control panel interprets the circuit's states in the following manner:

Circuit state	Condition
Short	Trouble
EOL detected	Normal
Open	Fault



Burglary trouble circuit

13.6 Zone Types

13.6.1 Fourteen zone types

The zones of the BHS-4000B 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
- Duress zone
- Follow delay zone
- Fire zone
- Local zone
- Carbon Monoxide zone

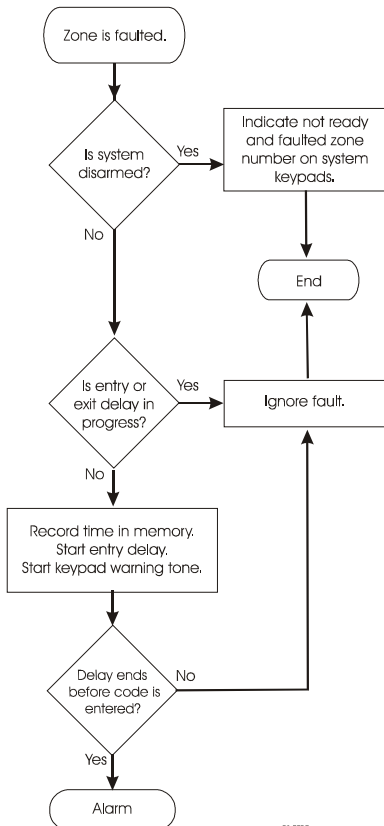
Each zone type is described on the following pages.

13.6.2 Unconfigured zone

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

13.6.3 Entry/exit delay zone

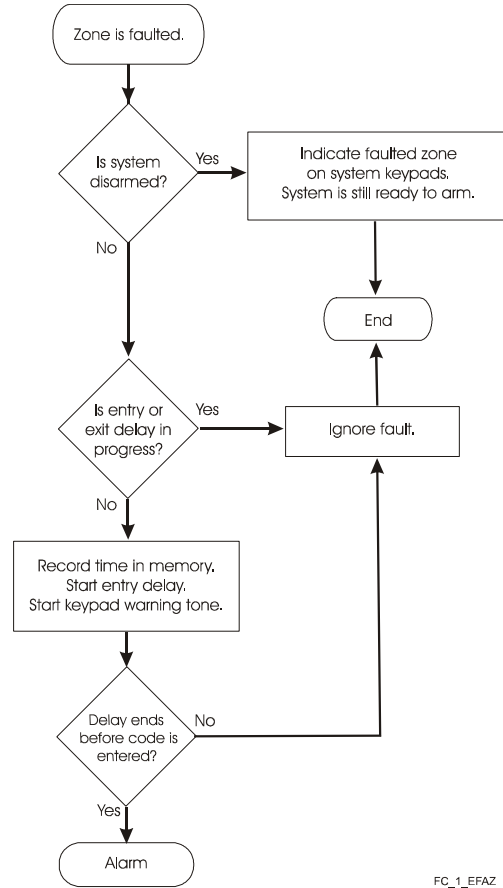
Zones that monitor the common points of entry and exit should be programmed as entry/exit zones. The flowchart shows the conditions under which a fault on an entry/exit delay results in an alarm.



Entry/exit delay zone

13.6.4 Exit Force Arm zone

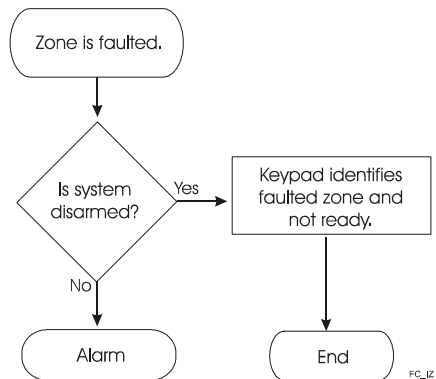
Zones that monitor the building's alternative points of entry and exit should be programmed as secondary delay zones. An example of this would be a garage door. This zone is not enabled until it is restored at the close of the entry or exit delay. The flowchart shows the conditions under which a fault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



Secondary delay zone

13.6.5 Instant zone

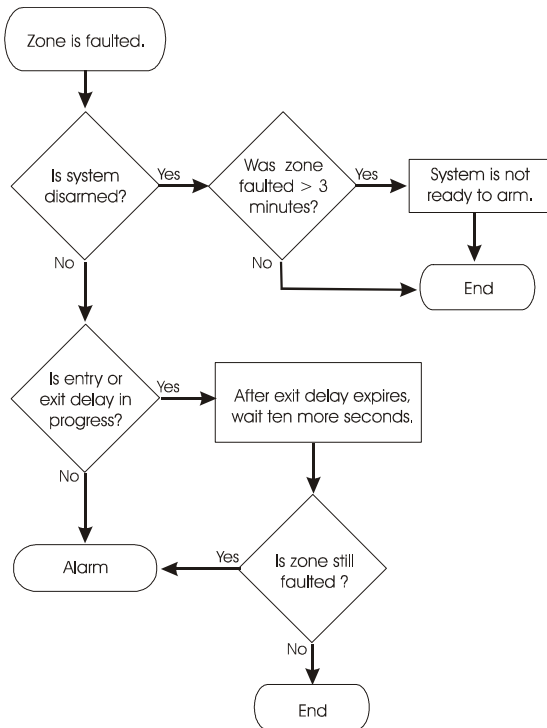
Zones that protect areas that are not common points of entry can be programmed as instant zones. An example would be an interior motion detector. The flowchart shows the conditions under which a fault on an instant zone results in an alarm.



Instant zone

13.6.6 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.



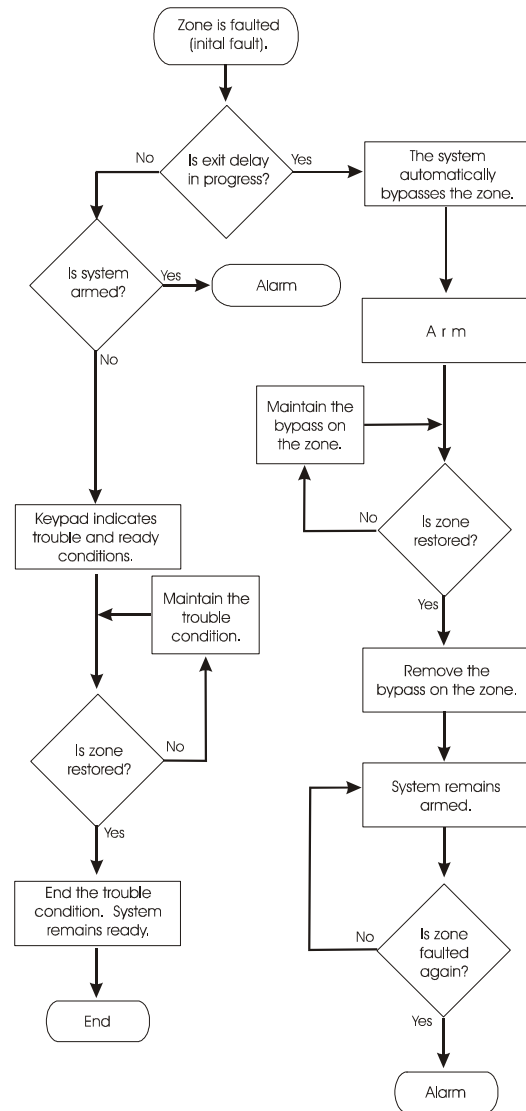
Follower zone

13.6.7 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

13.6.8 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.

13.6.9 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.

13.6.10 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.

13.6.11 Auxiliary zone

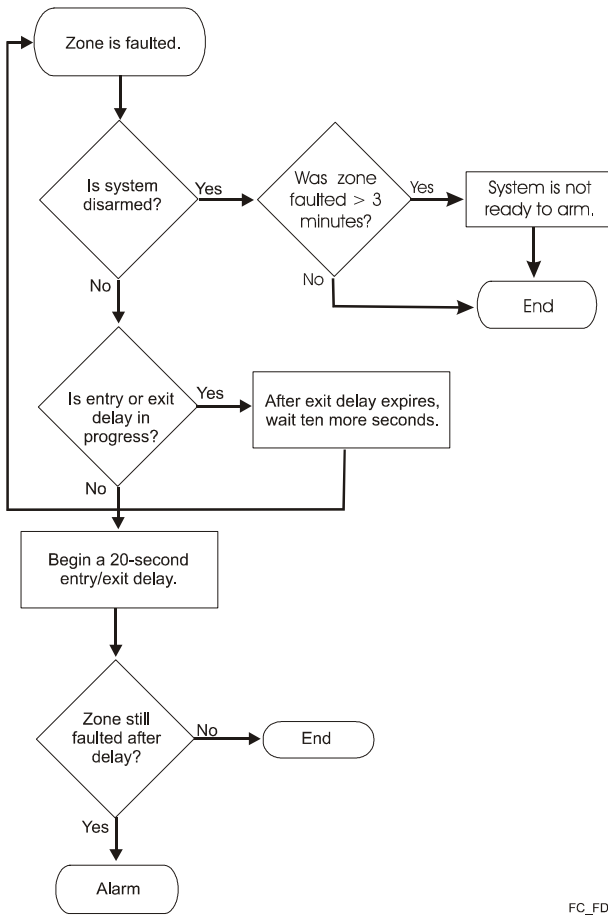
A monitoring device on this 24-hour zone type can be used to summon help when a potentially dangerous condition exists, such as frozen pipes, or water leaks. A push button device on the zone can also be used to trigger silent report tampers. An alarm is triggered when the auxiliary zone is faulted. The default setting is to not sound the siren on an auxiliary zone fault. A faulted auxiliary zone does not affect the systems ready state. A system can be armed with an auxiliary zone in a faulted state. When the system is disarmed the auxiliary zone will go into trouble on the keypad and stay in trouble until the auxiliary zone is restored to a normal state.

13.6.12 Duress 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 whenever the zone is faulted. The system gives no outward evidence that the alarm has occurred.

13.6.13 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

13.6.14 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.

13.6.15 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. If the zone is faulted on disarm, the zone fault is momentarily displayed on the keypad at which the disarm is performed.

13.6.16 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.

13.7 Blank and Sleep Modes

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

NOTE

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

Blank Mode. In Blank Mode, the panel 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. If any key is pressed while the system is in Blank Mode, the LEDs or display on the keypad(s) will turn on for 30 seconds and then turn back off.

To enter Blank Mode:

1. If the system is on, turn it off by entering a user code.
2. Press and hold the CANCEL key for 15 seconds. When prompted, enter the master user code.

To end Blank Mode:

1. 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.
2. Press and hold the CANCEL key for 15 seconds. When prompted, enter the master user code.
3. 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.

14 Appendix A: System Configuration Worksheet

ZEM Zone Numbers

1: Zones 9-16

5: Zones 41-48

9: Zones 73-80

2: Zones 17-24

6: Zones 49-56

10: Zones 81-88

3: Zones 25-32

7: Zones 57-64

11: Zones 89-96

4: Zones 33-40

8: Zones 65-72

Device	No.	Owner	User No.
Keyfob	1		
	2		
	3		
	4		
	5		
	6		

Notes

* The Device Number is the number assigned to the keypad, ZEM, etc. during the Learn Devices procedure. The Serial Number is the unique number assigned to the product at the factory; you can find it written on a sticker affixed to the device. Both the Device and Serial Numbers are fixed for the TCM; the Device Number of the control panel is always 0.

Device	Number	Location/Other	Device Number*	Serial Number*
ZEM	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	1			
	2			
	1			
	2			
	3			
Keypad	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
	14			
	15			
	16			
	1		32,763	00000001

Output	Location	Description
Panel	Terminal 3	
	Terminal 4	Courtesy output on bell
Keyfob receiver	Keyfob receiver 1, output 1	
	Keyfob receiver 1, output 2	
	Keyfob receiver 2, output 1	
	Keyfob receiver 2, output 2	

Zone	Type	Location/Other
1	Panel	
2		
3		
4		
5		
6		
7		
8	ZEM 1	
9		
10		
11		
12		
13		
14		
15		
16	ZEM 2	
17		
18		
19		
20		
21		
22		
23		
24	ZEM 3	
25		
26		
27		
28		
29		
30		
31		
32		

Zone	Type	Location/Other
33	ZEM 4	
34		
35		
36		
37		
38		
39		
40	ZEM 5	
41		
42		
43		
44		
45		
46		
47		
48	ZEM 6	
49		
50		
51		
52		
53		
54		
55		
56	ZEM 7	
57		
58		
59		
60		
61		
62		
63		
64		

Zone	Type	Location/Other
65	ZEM 8	
66		
67		
68		
69		
70		
71		
72	ZEM 9	
73		
74		
75		
76		
77		
78		
79		
80	ZEM 10	
81		
82		
83		
84		
85		
86		
87		
88	ZEM 11	
89		
90		
91		
92		
93		
94		
95		
96		

15 Appendix B: Programming Relay Outputs

15.1 Introduction

This appendix contains an in-depth discussion of the configuration and programming of the panel's relay outputs.

15.1.1 Outputs

The BHS-4000B can have many outputs per system. There is one output on the panel itself, the Special Function output (Terminal 3). Terminal 3 is a totem pole output, capable of sourcing or sinking up to 10 mA. There may also be additional outputs on bus devices.

Note

If the Courtesy on Bell Enable topic is enabled, the courtesy function is transferred to the bell output. This allows you to program Terminal 3 to perform another function, such as cellular backup reporting.

To enable the topic, select **Advanced Menu | View/Edit Panel | Courtesy on Bell |**; program "yes."

15.1.2 Output numbering system

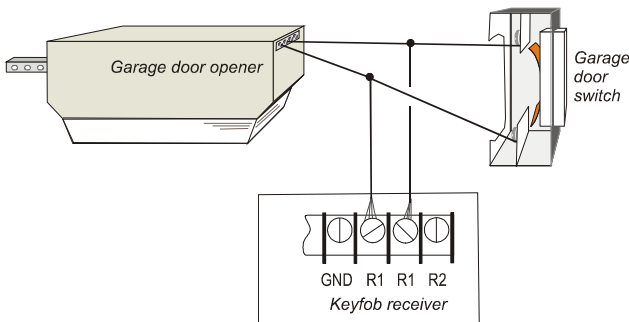
Outputs, like inputs, are assigned a two-part number. The first part identifies the device number, and the second identifies the system's output number. If, for example, a system has two keyfob receivers that are assigned the device numbers 1 and 3, the system's output numbers would be as follows:

1. 0.1 (panel, Terminal 3);
2. 1.2 (keyfob receiver 1, first relay);
3. 1.3 (keyfob receiver 1, second relay)
4. 3.4 (keyfob receiver 2, first relay);
5. 3.5 (keyfob receiver 2, second relay)

15.1.3 Output connection example

To connect a keyfob relay to a garage door opener:

Wire the normally-open relay output (R1 on the keyfob receiver) in parallel with the garage door switch as illustrated below.



Output wiring – with the keyfob receiver

15.1.4 Terminal 3 versus Device relays

The panel's on-board output can be configured in a wider variety of ways than the relays on the bus devices, as the table below shows. Each configuration is described in detail after the table.

Configuration	Terminal 3	device relay
Automatic Event	✓	✓
Cellular Backup	✓	
Disabled	✓	✓
Manual Command / Courtesy Output	✓	

Note to table: a check-mark indicates that the output can be configured in the manner listed.

The configurations listed in the table can be defined as follows:

Automatic Event. Automatic events are customized by the installer to suit a particular application. An automatic event consists of three parts:

- 1) the triggering event;
- 2) any additional restrictions placed on the triggering event; and
- 3) the cadence and duration of the output, when triggered.

An example of an automatic event might be the following:

- 1) if a zone is in alarm (the trigger); and
- 2) that zone is a fire zone (the restriction); then
- 3) pulse the relay device 1s/ 1s for 240 seconds (the output cadence and duration).

Cellular backup. This enables the system to report via a cellular telephone link when a line-cut condition makes it impossible to send system reports through the telephone lines. (Only Terminal 3.)

Disabled. When an output is disabled, any connected relay device is never activated.

Manual command / Courtesy Output. The manual commands are four pre-defined triggers and output cadences that are enabled and disabled as a group. They are listed in the table below. When Terminal 3 is programmed to be triggered by these four manual commands, the output is called the Courtesy Output. (Only Terminal 3.)

Triggering event	Output's response
User presses and holds the [5] key for more than three seconds.	Toggles between on and off
Entry or exit delay starts	Turns on steady and stays on for 60 seconds after the end of the entry or exit delay.
Burglary alarm	Pulses at the rate of two seconds on/ two seconds off until another triggering event occurs or a valid user code is entered.
Fire alarm	Turns on steady and stays on until another triggering event occurs or a valid user code is entered.

15.2 Default output programming

The table below shows the default programming of each of the system's outputs.

Output	Programming
Panel Terminal 3)	Not enabled.
Receiver. Relay #1	Closes for one second when the keyfob's white Door button (button 4) is pressed.
Receiver. Relay #2	Closes for two seconds when the system is armed or disarmed by any means.

15.3 Programming Terminal 3

15.3.1 Automatic Event

To customize a trigger and output for Terminal 3, select **Advanced Menu | Device | View/Edit Device 0 | Outputs | Output Mode** |; program "Auto event." More information about automatic event programming is included in section 15.4 .

15.3.2 Cellular Backup*

To program Terminal 3 for Cellular Backup, select **Standard Menu | Terminal 3** |; program "Cellular Backup."

*Only for the Special Function Output on the Panel.

15.3.3 Manual command / Courtesy Output*

To program the Special Function terminal (Terminal 3) to be a Courtesy Output, select **Standard Menu | Terminal 3** |; program "Courtesy." To transfer this function to the Bell Output (Terminal 4) instead, select **Advanced Menu | View/Edit Panel | Courtesy on Bell** |; program "yes." You may then program Terminal 3 to perform another function, such as cellular backup reporting.

*Only for the Special Function Output on the Panel.

15.3.4 Disabled

If the relay has been programmed, you can disable it by selecting **Standard Menu | Terminal 3** |; program "None."

15.4 Programming a device relay output

To customize a trigger and output for a device relay output, select **Advanced Menu | Device | View/Edit Device [Device Number] | Outputs | Output Mode** |; program "Auto event."

Triggering events. Choose from the triggering events shown in the tables on the following page.

Output behavior: For each trigger, you define the output pattern and the cutoff seconds.

- **Output Pattern:**
 - Silent
 - Steady
 - Pulse 1s/1s
 - Temporal Code 3 USA
 - Temporal Code 3 CAN
 - Blast 1s
 - Chirp 100ms
 - Medical
 - Toggle

- **Cutoff Seconds:**
 - 0-32,767 seconds
 - (Note: If the output pattern is "Blast," the cutoff seconds topic is not displayed.)

Trigger Restrictions. You can impose additional restrictions on some of the triggering events. For example, you can specify which user's code must be entered before a relay is triggered, or which keyfob button must be pressed. You can restrict a zone-related trigger event by specifying the zone type, the zone class and/or the zone number.

The following trigger restriction topics exist:

- zone number
- zone class (fire, burglary, etc.)
- zone type (entry-exit, instant, etc.)
- keypad number
- user number
- input number
- keyfob button number
- alarm output number
- keypad key number
- Account number

Select the desired user number, zone type, etc. from the list the programmer displays. If you do not wish to place a particular restriction on a triggering event, choose that topic's "any" option.

You may not choose more than one item (zone type, user number, etc.) per restriction. For example, while a restriction can specify that a triggering event must occur on zone 6, it cannot specify that the event must occur on *either* zone 6 or zone 12. More complex effects such as that can be achieved by creating additional triggers for the output. Each of the system's output can have as many as four separate triggers.

Not all restrictions apply to each trigger. Thus, the programmer's display shows only those restrictions that apply to the triggering event you have chosen. The table on the following page identifies the restrictions that apply to each trigger.

Note

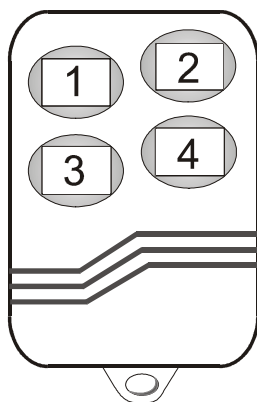
When power is restored to the panel after an outage, all outputs on the output devices revert to their untriggered state. If, for example, a relay had triggered a warning LED to light after a given event, that light would not turn back on after power was restored to the panel.

Restrictions that can be applied to the automatic commands triggering events

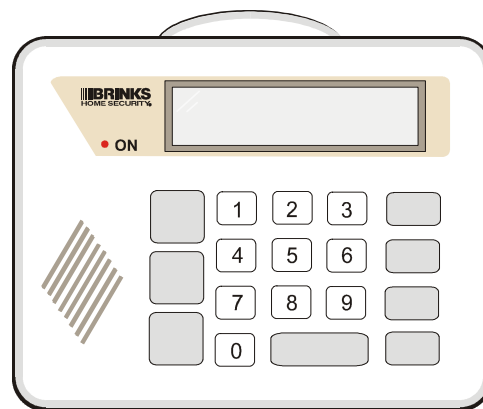
Event	Trigger Detail Setting				
Disabled	Zone #	Zone Class	Zone Type		
Zone Alarm	Zone #	Zone Class	Zone Type		
Zone Alarm Restore	Zone #	Zone Class	Zone Type		
Zone Fault	Zone #	Zone Class	Zone Type		
Zone Fault Restore	Zone #	Zone Class	Zone Type		
Zone Trouble	Zone #	Zone Class	Zone Type		
Zone Trouble Restore	Zone #	Zone Class	Zone Type		
User Code Entry	Keypad	User			
Input Fault	Input				
Input Fault Restore	Input				
Keyfob Button Down	Button				
Ready to Arm					
Not Ready to Arm					
Exit Delay Start					
Exit Delay End					
Entry Delay Start					
Entry Delay End					
Alarm Output Trouble	Alarm Output				
Alarm Output Trouble Restore	Alarm Output				
Area Armed					
Area Disarmed					
Keypad Key Held 3 seconds	Keypad	Key			
Zone Alarm Reset	Zone #	Zone Class	Zone Type		
Time of Day	Weekday	Hour	Minute		

Trigger Detail Setting	Range
Zone #	Any / 1 – 96, 248 – 256
Zone Class	Any / None/ Burglary / Fire / Gas / Panic / Medical / Auxiliary
Zone Type	Any / Unconfigured* / Exit/Entry / Exit Force Arm / Instant / Follower / Day/Night / Medical / Assault / Silent Assault / Auxiliary / Duress / Follower Delay / Fire / Local
Keypad	Any / 1 – 128
User	Any / 1 – 96
Input	Any / 1 – 96
Button	Any / 1 / 2 / 3 / 4 (Keys 5 – 9 are also available, see page 17 for more information.)
Alarm Output	Any / 1 / 2 / 3 / 4
Key	Any / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 (Note: the 0 key is not valid.)
Weekday	Sunday / Monday / Tuesday / Wednesday / Thursday / Friday / Saturday
Hour	1 – 24
Minute	1 – 60

*Note: Do not use “unconfigured” Zone Type because it has no effect on the output.



Keyfob button numbers



Keypad button numbers

16 Appendix C: Glossary of Programmable Topics

--- A ---

AC Fail (Report). Tells the central station (or other communicator) that the panel 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 2-8 Select. Configures specialized reporting options for the customer. Communicators 2 - 8 are commonly used for reporting to a personal pager, GSM, Internet or for backup reporting, if Backup is enabled. Choose the appropriate communicator from the list provided.

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 Downloader 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.

Alarm Output Name. A description of the alarm output device (for example, the sounder), in the event that external devices are installed. The system can support up to four alarm outputs. The name may be up to 24 characters long.

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

Apartment Number. The number of the apartment unit protected by the control panel.

Area Name. A description of the area. Because the system only supports one area per account, this field does not need to be programmed.

Automatic Event (Output Mode). Determines which of the system events triggers a relay. Automatic events can be used to control external circuits connected either to the Courtesy Output or to any bus device with a relay (such as the Fob Receiver). There are 21 different events that can trigger an output. Each trigger can be programmed to respond to a maximum of four trigger events. Select the event from the list of available options.

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 announce 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 ----

Back Light Latch. The keypad key back light will stay on permanently when this feature is enabled.

Battery Fail (Report). Tells the central station that the backup battery's voltage has dropped below 10.0 VDC, and that the panel 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 11.9 VDC.) This report is the last report sent before the panel goes off line. Program "yes" to enable this type of reporting.

Building Number. The number of the building in which the control panel is installed.

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.

Cellular Backup Enable. Directs the panel to use the Versus Cellular system for backup reporting in the event of a line cut. This is an analog cellular system. The reports are sent to the same central station as the landline reports; the only difference is that a cellular connection is used. This option is available only through the Standard Menu (Option B: Terminal 3). Program "yes" to enable this backup 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 panel 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.

Circuit Type. Determines how the panel interprets input variations, such as shorts and opens. It also determines how the system interprets trouble and tamper conditions. Available options are normally-closed, normally-open, EOL, supervised, and burglary trouble. Select the appropriate circuit type from the list provided.

Close Delinquent (Report). Tells the central station (or other communicator) that the panel 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. This report is normally sent to Comm 2 (pager). 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 2-8.) This number becomes the system's installer code.

Comm 2-8 Backup. If enabled, the panel will automatically send reports to the backup communicator after one failed attempt to communicator 1. If disabled, the panel will only send reports to the backup communicator after all attempts to communicator 1 have failed.

Comm Enable. Activates the communicator, allowing it to report events. This topic does not affect remote programming (Downloader (Vivaldi) 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," "Dad's pager," "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 panel for reporting of events. The SIA protocol is used for reporting to central station receivers. The Numeric Pager protocol uses DTMF tones for sending reports to personal pagers. Select the appropriate communicator type from the list.

Complex Name. The name of the apartment complex to which the control panel belongs.

Confirm Fob Bell. Turns the bell output on for two seconds whenever the panel 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.

Control Server. This server is used to establish a connection between the panel and the Downloader when session is Downloader initiated. An IP address and port number are needed for the panel to ping the control server periodically.

Courtesy on Bell. Transfers the Courtesy Output function to the bell output. This allows the system to be configured for backup reporting, with the Courtesy output available through the bell output terminal. Program "yes" to enable this transfer.

Courtesy Output Enable. Enables the Courtesy Output to operate. The Courtesy Output is designed to operate with X-10 home automation equipment and may be used to turn on interior lights during the Entry Delay and for 60 seconds following the expiration of the delay. Program "yes" to activate the output.

Cutoff Seconds (Relay Trigger). How many seconds the output remains active before turning off following a trigger event. Program a value within the range of 0-32,767 seconds (9.1 hours), where 0 latches the relay.

---- D ----

Daylight Savings. Instructs the panel 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 panel to skip a scheduled test report if the panel has successfully reported an event to the central station during the programmed interval. Program "yes" to defer test reporting under these circumstances. [Note: this feature does not apply to daily periodic test reporting, (i.e., Test Reporting Interval set to 0).]

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

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

Device Location. Describes the type or location of a device. Examples could include "front door keypad," or "ZEM in attic." The device type is used as the default location for each device. Enter up to 24 characters.

DHCP. This determines if the IP gateway should automatically obtain IP addresses and other parameters such as the default gateway, subnet mask, and IP address of DNS server from a DHCP server.

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 panel tries to call the reporting device before determining that a communication failure occurred. When a dial-tone is detected, the panel lets the telephone ring for up to 45 seconds. If there is no answer, the panel 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 panel dials this prefix before any call it places, except when it is using a cellular connection. The standard characters are:

- Access an outside line from a PBX system (8 or 9)
- Pause for five seconds (.)
- Wait for dial tone (W)
- Voice Over IP Tone duration (Vx), where x = 0–50 tenths of a second, for 0-5 seconds. Default = 0 (disable VOIP)
- Voice Over IP Frequency (Fx), where x = 30–300 (in 10-Hz increments, for 300–3000 Hertz). Default = 210 (2100 Hz)
- Voice Over IP Delay (Qx), where x = 1–50 tenths of a second, for 0.1 second to 5 seconds (delay between end of dialing and transmission of VOIP tone). Default = 1 (0.1 seconds)

Important: Voice Over IP commands are for installations employing internet telephone service. Any digits or dial modifiers must come before VOIP commands.

This topic is located in the **Advanced | Panel |** 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 panel 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 panel to wait before reporting the alarm condition. **Note:** dialer delays are ignored when there is a line cut condition and the panel 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 icon (Premium) 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 (Specialty Zone Enable). Enables the duress feature on zone 256. When the duress code is entered, a silent alarm is sent to the central station, but the system appears to operate normally (arm or disarm). Program “yes” to enable this type of alarm. **Note:** The Duress User Code topic (User 95) must be programmed.

Duress User Code. The user code that triggers a duress alarm. Entering the duress code (User 95) 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.

EOL Resistance. Specifies the End-of-Line resistance value used by the circuit. Different devices may require different resistance values. Resistors used in the BHS-4000B have a 5% tolerance. Select the EOL value from the list provided; the range is 680 Ohm to 33K.

EOL Resistors. Changes the circuit type all of zones, except the fire zone(s), from normally-closed to the EOL configuration. (While on-board zones can be configured with a number of different EOLRs, you must use a 4.7K EOLR when configuring a ZEM zone.) Program “yes” to configure these circuits this way.

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 panel 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 panel from reverting, program a date far in the future, such as the default value 09/09/9999.

---- F ----

Field Separator. The character in a pager report that separates the account number from the event code. The asterisk (*) is normally used as the field separator. Separators do not separate event codes; each event is sent as a separate message. Program this topic with the single character of your choice.

Field Terminator. The string in a pager report that identifies the end of the message. The pound sign (#) is normally used as the field terminator. The field terminator is the last string sent, following the account number, the field separator, and the event code. This option is programmed using the same format as Pager Control.

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 panel receives a panic signal from the keyfob. 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.

--- H ---

Host Check-In (User 92). The user code that allows the customer to initiate a call to the Downloader. After the call is connected, the code is changed to another random code that is stored in the Vivaldi database. The new code is given to the customer by a Customer Care operator when needed.

Host Retry Days. This field is used to determine how often the panel should attempt a retry to Vivaldi if a communication was not successful (a retry consists of two attempts). A failure to communicate (CH Trouble) will be annunciated after three retries. (For example, an entry of 20 would result in a call every 20 days. If after 60 days (20 x 3), the panel has still not communicated, a CH Trouble would result.)

Note: The panel will not display a CH Trouble if it has never had a successful communication with Vivaldi.

Host Server. The server on which the Vivaldi Downloader is hosted. An IP address and port number are needed for the panel to communicate with the Downloader through GSM or IP type connections.

HWCTP Server. This is the server used by the panel to report any alarm events through GSM or IP gateway. An IP address and port number are needed for the panel to communicate with the server.

--- I ---

Installer Login (Report). Tells the central station (or other communicator) that the panel 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. The Telephone Control Module (TCM) is also assigned a keypad number.

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

Keypad Trigger (Relay Trigger). The number of the keypad on which an event must occur before a relay is triggered. Choose one number in the range 1-128. You may also choose "any" if any keypad may be used, or if the keypad number is not relevant.

--- L ---

Latch Strobe. Causes the strobe to turn on during an alarm and remain on until a valid user code is entered. (Strobes are optional devices that are connected to the bell output.) Program "yes" to program the strobe to turn on under these circumstances.

Latching Chime. Causes the chime feature to be temporarily suspended when the system is armed, then reinstated when the panel 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 panel 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 11.9 VDC. Program "yes" to enable this type of reporting. (The Low Battery Report topic in the View/Edit Panel 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. Programming "no" will completely disable battery testing.

--- M ---

Manual Command (Output Mode). The fixed panel-events that can trigger an external device connected to the Courtesy Output. (The external outputs cannot be configured in this way.) These events are designed for use with interior house lighting controlled by the X-10 Home Automation package. The following manual command relay triggers will activate the Courtesy Output:

Burglary Alarm Trigger. Causes the output to flash after a burglary alarm. The flash rate is 2 seconds on / 2 seconds off. This output continues until it is changed by another event or a valid user code is entered.

Fire Alarm Trigger. Causes the output to latch on after a fire alarm.

Entry/Exit Delay Trigger. Causes the output to turn on at the start of the entry delay timer. It remains on for an additional sixty seconds after the delay ends, then turns off automatically.

User Control Trigger. Allows the user to toggle the output by pressing and holding the [5] key for three seconds.

Master Code. The code that is required to add or change the user codes of auxiliary users (Users 1 – 91). The master user code (User 96) 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.

Mode (Output). The category of event that triggers an output. See also the two categories: automatic event and manual command.

Motion Bypass Enable. Instructs the panel 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. If this feature is disabled, opening and closing reports are still sent to Comm 2 (Personal Pager), if this communicator is enabled. Program "yes" to send these reports. **Note:** by default, opening and closing reports are not enabled for User 96 (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 96 (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.

Output Pattern (Relay Trigger). The output cadence that a relay follows after it is triggered. Choose the desired cadence from the list provided.

Output Mode. See Mode (Output).

Output Name. Describes the output, for easier identification. Enter up to 24 letters or numbers.

---- P ----

Pager Control. Specifies the paging system when reporting. Up to six codes can be used, the codes are assigned numeric values. The codes are shown below. A typical string would be: "T1400, 50D1." Program up to 32 characters.

Format	Action	Comment
D{seconds}	Timed Delay	1 to 10 seconds
Ndigits	Dial DTMF Digits	Any of 0123456789*#

Tfreq,ms	Wait for Tone	freq = frequency from 400 to 2600 ms = milliseconds tone must be present from 10 to 10000
Vms	Wait for Voice	milliseconds voice must be present from 10 to 10000
Sms	Wait for Silence	milliseconds silence must be present from 10 to 10000

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.

Ping Server. This determines if the IP gateway should ping the control server or not.

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 panel 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 8**.) Program "yes" to allow the panel to report zone events to the specified communicator.

Response Time (Input). How many milliseconds the circuit must remain faulted before the panel recognizes the fault. Use a longer time in an area where machinery may induce noise into the circuit. (If noise spikes may be misread as faults, increase the Circuit Response Time.) Program 20-30,000 milliseconds.

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 option affects all zones in an account, 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 panel to recognize a new alarm instantly.

Restore Report Enable. Instructs the panel 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 panel 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 control panel answers an incoming call. Program 0-15 rings, where 0 prevents the system from answering the telephone.

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

---- 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.

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.

Server Ping Time. Tells the GSM or IP gateway how often to check the control server for any Vivaldi initiated session.

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 keyfob. 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.

Siren Trouble/Supervision Failure (Report). Tells the central station (or other communicator) that the system's speakers or sirens have a trouble condition. This trouble, which could be either an open or a short, would indicate a problem with the speaker's wiring. Program "yes" to enable this type of reporting.

SMTP Server. This is the server used for communicator reporting through email. An IP address and port numbers are needed for the panel to communicate with the SMTP server.

Special Bypass Code. When entered while the system is armed, this code (User 94) 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.

Supervised (speakers). Instructs the panel to supervise the speaker (siren) wiring for opens and shorts. When the system is disarmed, an open or a short is considered a trouble condition. When the system is armed, an open or short triggers an alarm, which is then reported. Program "yes" to have the speakers supervised in this manner.

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 ----

TCM Access Code. The code (user 93) used to gain access to the panel via a remote TCM hookup. The code is not needed when a house telephone is used to command the TCM. The TCM access code is the only user code whose length is not determined by the **User Code Length** topic. Program a code of your choice.

Test Report Enable. Instructs the panel 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.

Trigger Event (up to 4 programmable triggers per output). The precise conditions under which a system relay changes state. For example, a relay may be programmed to close when there is an alarm on any zone that is both a burglary zone and an entry/exit zone. Each relay can be programmed to respond to four triggers. If multiple triggers are specified, and one trigger event is in progress while a second event occurs, the second event interrupts the first and takes control of the output. The programmable options vary, depending upon the trigger event being programmed. Specify the desired conditions needed to activate the relay.

Trigger Zone (Relay Trigger). The zone on which an event must occur before a relay is triggered. Choose a specific zone (1-96, 248-256). You may also choose "any" if the event can occur on more than one zone, or if the zone number is not relevant.

Trouble Report Enable. Instructs the panel 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. With the exception of the TCM Access Code, each user code is truncated to the number of digits programmed in the **User Code Length** topic. (The TCM Access Code is not truncated.) There are three pre-defined user codes: User 92 – Host Check-in User (876); User 93 – TCM Access (654321); and User 96 – 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 92 (Host Check-in User), User 93 (TCM Access), User 94 (Special Bypass User), User 95 (Duress User), and User 96 (Master User). Enter up to 24 characters.

User Number (Relay Trigger). The user who must cause an event before a relay is triggered. Choose one number in the range 1-96. You may also choose "any" if any user may be involved, or if the user number is not relevant.

---- V ----

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

---- W ----

Warble Siren. Instructs the panel to modify the programmed siren pattern by adding a warble. The warble is heard for the duration of the time that the siren sounds. Program "yes" to add this warble to the siren tone.

Wrap Around Enable. Instructs the panel 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 panel 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 an input, either on the control panel or on a ZEM. Any zone number may be assigned to any input, thus input 1 could be assigned to zone 6. On the ZEM, the input range is configured the setting of J1 on the Expansion Module. For ease of programming, the default input and zone numbers of the BHS-4000B are the same. Program 1-96, 248-256.

Zone Class (Relay Trigger). The class of zone (fire, burglary, etc.) on which an event must occur before a relay is triggered. Choose from the list provided. You may also choose "any" if the event can occur on more than one class of zone, or if the zone class is not relevant.

Zone Enabled. Tells the system whether the zone is active. This applies to all zones, including the soft zones (zones 248 – 254) and the specialty zones (zones 255 and 256). 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 panel to ignore the zone.

Zone Type (Relay Trigger). The type of zone (entry/exit, instant, etc.) on which an event must occur before a relay is triggered. Choose from the list provided. You may also choose "any" if the event can occur on more than one type of zone, or if the zone type is not relevant.

17 Appendix D: Programming Shortcuts

17.1.1 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 4-4-1. This appendix contains the shortcuts for the BHS-4000B.

17.1.2 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:

Topic	Shortcut	Ref Number
User Code Length	4-4-1	4 of 31

2. From the Home Menu, press the digits of the shortcut (4, then 4, and then 1) in succession. This takes you to View/Edit Account. Press the **[Enter]** key to view the topics of View/Edit Account.
3. 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.
4. Press the **[Enter]** key to switch from the programmer's navigational mode to its data-entry mode.
5. 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.
6. Press the **[Enter]** key to write the programming change to memory and to return to the navigational mode.
7. Press the **[Home]** key to return to the Home Menu. At this point, you can begin the next shortcut programming task.

17.1.3 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:

Topic	Shortcut	Ref Number
Access Code	4-4-3-(User #)-1	2 of 3

To change the code of user 4, for example, you would do the following:

1. From the Home Menu, press 3, 4, 3.
2. Input the user number whose code you wish to modify. In this case, you would press 4 for user number 4.
3. Press the **[Enter]** key to return to the navigational mode.
4. Press 1 (View/Edit User).
5. 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.
6. Press the **[Enter]** key to switch to data-entry mode.
7. Input the new user code

8. Press the **[Enter]** key to write the programming change to memory and return to the navigational mode.
9. Press the **[Home]** key to return to the Home Menu. At this point, you can begin the next shortcut programming task.

17.1.4 Primary Menu Shortcuts

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

View/Edit Menu	Shortcut
Account	4-4-1
Area	4-4-2-1
Communicator	4-3-(select comm)-1
Device	4-2-(select the device)-1
Panel	4-1
User	4-4-3-(select user)-1
Zone	4-4-2-2-(select zone)-1
Installer	4-5-1
Fob	4-7-(select fob)-1

17.1.5 Programmable Topic Shortcuts

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

A small number of Advanced Programming topics do not appear in the table below. These topics are: circuit type, EOL resistance, response time, zone #, and output trigger. Those topics require too much site-specific information for them to be distilled to a shortcut. To program the circuit type, EOL resistance, response time, and zone #, select the device (control panel or ZEM) on which the zone is located, then select menu item 2: inputs. To program the output triggers, select the device (control panel or keyfob receiver) on which the output is located, then select menu item 3: outputs.

Topic	Shortcut	Ref. Number
Account ID	4-4-1	1 of 31
Account Mode	4-4-1	3 of 31
Account Name	4-4-1	2 of 31
Alarm Cancel Enable	4-4-1	19 of 31
Alarm Output Name	4-2-(Device 0)-4	1 of 14
Answering Machine Bypass Enable	4-1	2 of 16
Apartment Number	4-4-1	31 of 31
Area Name	4-4-2-1	1 of 2
Auxiliary Pattern	4-2-(Device 0)-4	11 of 14
Auxiliary Cutoff Minutes	4-2-(Device 0)-4	12 of 14
Building Number	4-1	16 of 16
Burglary Pattern	4-2-(Device 0)-4	5 of 13
Burglary Cutoff Minutes	4-2-(Device 0)-4	6 of 13
Chime Enable	4-2-(Keypad)-5	3 of 6
Chime Zone Enable	4-4-2-2-(zone #)-1	7 of 19

Comm 1 Setting	4-4-1	21 of 31
Comm 2 Setting	4-4-1	22 of 31
Comm 2 Backup	4-4-1	22 of 31
Comm 3 Setting	4-4-1	23 of 31
Comm 3 Backup	4-4-1	23 of 31
Comm 4 Setting	4-4-1	24 of 31

Comm 4 Backup	4-4-1	24 of 31
Comm 5 Setting	4-4-1	25 of 31
Comm 5 Backup	4-4-1	25 of 31
Comm 6 Setting	4-4-1	26 of 31
Comm 6 Backup	4-4-1	26 of 31
Comm 7 Setting	4-4-1	27 of 31
Comm 7 Backup	4-4-1	27 of 31
Comm 8 Setting	4-4-1	28 of 31
Comm 8 Backup	4-4-1	28 of 31
Comm Enable	4-1	4 of 16
Comm Name	4-3-(Comm #-)1	2 of 30 or 2 of 33 (w/pager)
Comm Type	4-3-(Comm #-)1	1 of 30 or 1 of 33 (w/pager)
Complex Name	4-1	15 of 16
Confirm Fob Bell	4-1	12 of 16
Courtesy on Bell	4-1	10 of 16
Courtesy Output Enable	4-1	11 of 16
Daylight Savings	4-1	1 of 16
Defer Test	4-4-1	14 of 31
Delay Display Enable	4-4-1	8 of 31
Delinquent Days	4-4-1	9 of 31
Device Location: Control Panel	4-2-(Device 0)-1	1 of 1
Device Location: Fob Receiver	4-2-(Fob Receiver)-1	1 of 1
Device Location: Icon Keypad	4-2-(Keypad)-1	1 of 1
Device Location: LED Keypad	4-2-(Keypad)-1	1 of 1
Device Location: TCM	4-2-(Device 32763)-1	1 of 1
Device Location: Zone Expander	4-2-(Zone Expander)-1	1 of 1
Dial Prefix	4-1	7 of 16
Dial Area Code	4-3-(Comm #-)1	3 of 30 or 3 of 33 (w/pager)
Dial Attempts	4-3-(Comm #-)1	5 of 30 or 5 of 33 (w/pager)
Dial Phone Number	4-3-(Comm #-)1	4 of 30 or 4 of 33 (w/pager)
Dialer Delay Enable	4-4-2-2-(zone #-)1	11 of 19
Dialer Delay Time	4-4-1	20 of 31
Display Time	4-4-1	17 of 31
Double Dispatch	4-4-1	6 of 31
Entry Delay Time	4-4-2-2-(zone #-)1	8 of 19
Entry Tone Enable	4-2-(Keypad)-5	5 of 6
EOL Resistors	4-1	14 of 16
Exit Delay Time	4-2-(Keypad)-5	6 of 6
Exit Tone Enable (Keypad)	4-2-(Keypad)-5	4 of 6
Expiration Date	4-4-1	15 of 31
Fire Pattern	4-2-(Device 0)-4	3 of 14
Fire Cutoff Minutes	4-2-(Device 0)-4	4 of 14
FOB Panic is Medical	4-4-1	7 of 31
Keypad #	4-2-(Keypad)-5	2 of 6
Keypad Name	4-2-(Keypad)-5	1 of 6
Latch Strobe	4-2-(Device 0)-4	13 of 14
Latching Chime	4-4-1	5 of 31
Line Cut Monitor Enable	4-1	13 of 16
Low Battery Report Enable	4-1	5 of 16
Medical Pattern	4-2-(Device 0)-4	9 of 14
Medical Cutoff Minutes	4-2-(Device 0)-4	10 of 14
Message Field Separator (Pagers only)	4-3-(Comm #-)1	7 of 33 ² N/A w/o pager
Message Field Terminator (Pagers only)	4-3-(Comm #-)1	8 of 33 ² N/A w/o pager
Motion Bypass Enable	4-4-2-2-(zone #-)1	5 of 19

Output Mode	4-2-(Device 0)-3 4-2-(Fob Receiver)-3	1 of 3 ¹
Output Name	4-2-(Device 0)-3 4-2-(Fob Receiver)-3	2 of 3 ¹
Pager Control (Pagers only)	4-3-(Comm #-)1	6 of 33 ² N/A w/o pager
Panic Pattern	4-2-(Device 0)-4	7 of 14
Panic Cutoff Minutes	4-2-(Device 0)-4	8 of 14
Power Fail Delay	4-1	9 of 16
Privileges: Open/Close Report	4-4-3-(User #-)1	3 of 3
Quick Arm Enable	4-4-1	18 of 31
Report Comm 1	4-4-2-2-(zone #-)1	12 of 19
Report Comm 2	4-4-2-2-(zone #-)1	13 of 19
Report Comm 3	4-4-2-2-(zone #-)1	14 of 19
Report Comm 4	4-4-2-2-(zone #-)1	15 of 19
Report Comm 5	4-4-2-2-(zone #-)1	16 of 19
Report Comm 6	4-4-2-2-(zone #-)1	17 of 19
Report Comm 7	4-4-2-2-(zone #-)1	18 of 19
Report Comm 8	4-4-2-2-(zone #-)1	19 of 19
Report Events: AC Fail	4-3-(Comm #-)1	25 of 30 ² 28 of 33 (w/pager)
Report Events: Auxiliary Alarm	4-3-(Comm #-)1	12 of 30 ² 15 of 33 (w/pager)
Report Events: Auxiliary Trouble	4-3-(Comm #-)1	18 of 30 ² 21 of 33 (w/pager)
Report Events: Battery Fail (Load Shed)	4-3-(Comm #-)1	27 of 30 ² 30 of 33 (w/pager)
Report Events: Burglary Alarm	4-3-(Comm #-)1	8 of 30 ² 11 of 33 (w/pager)
Report Events: Burglary Trouble	4-3-(Comm #-)1	14 of 30 ² 17 of 33 (w/pager)
Report Events: Cancel Alarm	4-3-(Comm #-)1	22 of 30 ² 25 of 33 (w/pager)
Report Events: Close Delinquent	4-3-(Comm #-)1	30 of 30 ² 33 of 33 (w/pager)
Report Events: Closing	4-3-(Comm #-)1	20 of 30 ² 23 of 33 (w/pager)
Report Events: Comm Test	4-3-(Comm #-)1	29 of 30 ² 32 of 33 (w/pager)
Report Events: Device Error	4-3-(Comm #-)1	23 of 30 ² 26 of 33 (w/pager)
Report Events: Device Tamper	4-3-(Comm #-)1	24 of 30 ² 27 of 33 (w/pager)
Report Events: Fire Alarm	4-3-(Comm #-)1	9 of 30 ² 12 of 33 (w/pager)
Report Events: Fire Trouble	4-3-(Comm #-)1	15 of 30 ² 18 of 33 (w/pager)
Report Events: Installer Login	4-3-(Comm #-)1	6 of 30 ² 9 of 33 (w/pager)
Report Events: Low Battery	4-3-(Comm #-)1	26 of 30 ² 29 of 33 (w/pager)
Report Events: Medical Alarm	4-3-(Comm #-)1	11 of 30 ² 14 of 33 (w/pager)
Report Events: Medical Trouble	4-3-(Comm #-)1	17 of 30 ² 20 of 33 (w/pager)
Report Events: Opening	4-3-(Comm #-)1	21 of 30 ² 24 of 33 (w/pager)
Report Events: Panic Alarm	4-3-(Comm #-)1	10 of 30 ² 13 of 33 (w/pager)
Report Events: Panic Trouble	4-3-(Comm #-)1	16 of 30 ² 19 of 33 (w/pager)
Report Events: Program Error	4-3-(Comm #-)1	7 of 30 ² 10 of 33 (w/pager)
Report Events: Silent Alarm	4-3-(Comm #-)1	13 of 30 ² 16 of 33 (w/pager)
Report Events: Silent Trouble	4-3-(Comm #-)1	19 of 30 ² 22 of 33 (w/pager)
Report Events: Siren Trouble (Supervisory Fail)	4-3-(Comm #-)1	28 of 30 ² 31 of 33 (w/pager)
Restore Minutes	4-4-2-1	2 of 2
Restore Report Enable	4-4-2-2-(zone #-)1	9 of 19
Ring Back	4-4-1	29 of 31

Ring Count	4-1	6 of 16
Run Away Threshold	4-4-1	30 of 31
Special Bypass Enable	4-4-2-2-(zone #)-1	6 of 19
Supervised	4-2-(Device 0)-4	2 of 14
Swap * # Keys	4-2-(Device 32763)-1	3 of 3
Test Report Enable	4-4-1	10 of 31
Test Report Interval	4-4-1	13 of 31
Test Time of Day Hours	4-4-1	12 of 31
Test Time of Day Minutes	4-4-1	11 of 31
Trigger (1 – 4)	4-2-(Fob Receiver)-3	3 of 3 ¹
Trouble Report Enable	4-4-2-2-(zone #)-1	10 of 19
User Bypass Enable	4-4-2-2-(zone #)-1	4 of 19
User Code	4-4-3-(User #)-1	2 of 3
User Code Length	4-4-1	4 of 31
User Name	4-4-3-(User #)-1	1 of 3
Voice Mail Defeat Enable	4-1	3 of 16
Warble Siren	4-2-(Device 0)-4	14 of 14
Wrap Around Enable	4-4-1	16 of 31
Zone Enable	4-4-2-2-(zone #)-1	1 of 19
Zone Name	4-4-2-2-(zone #)-1	3 of 19
Zone Type	4-4-2-2-(zone #)-1	2 of 19

Notes to table:

1. The number of options varies, depending upon the setting of output type. The four output triggers are visible only if output type is programmed for automatic event.
2. The total number of options in this menu varies, depending upon the type of communicator being programmed. The values displayed here represent the relative values when programming a standard communicator. If you are programming a pager instead, add 3 to each relative location following the dial attempts.

18 Appendix E: ANSI/SIA False Alarm Reduction Features

The BHS-4000B 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 Broadview 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 Broadview 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 48 hour interval of no new alarms. Each bypassed zone has a separate 48 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 determined by zone type (see page 63).

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.

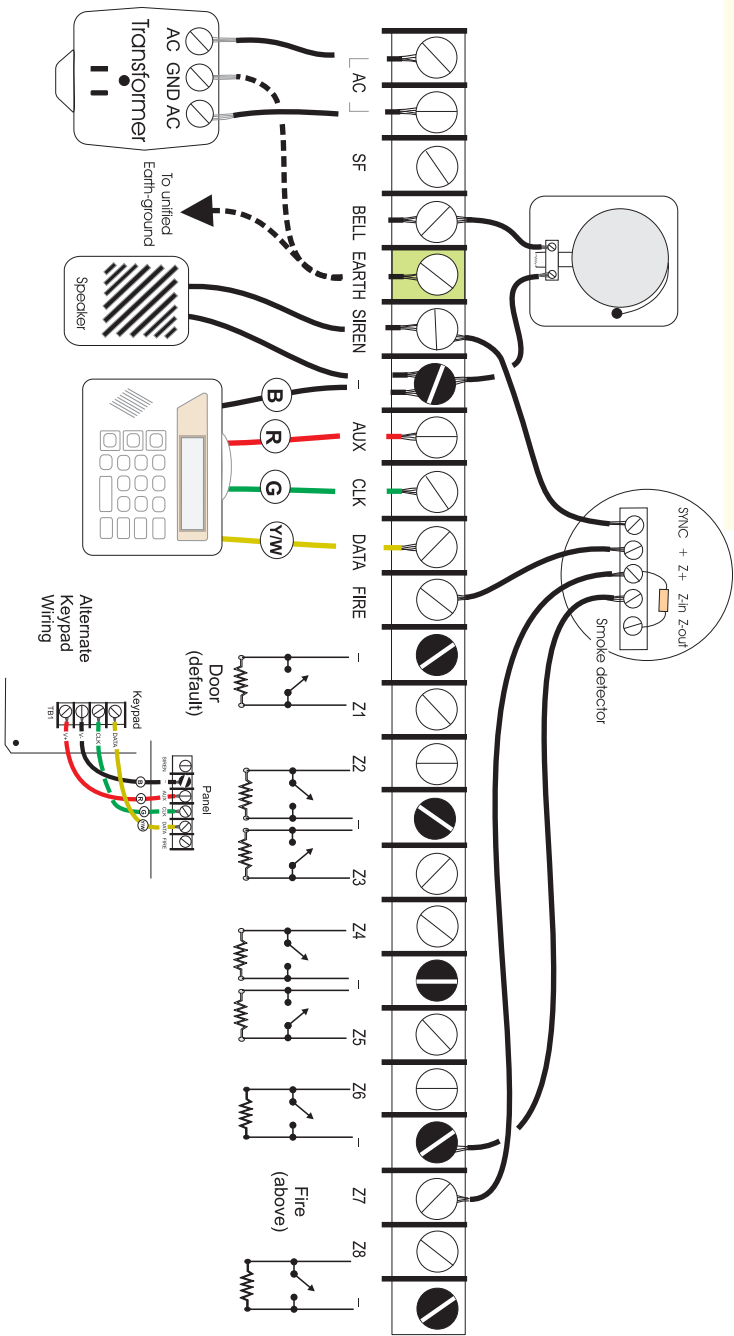
Recent Closing - Enables signaling of a recent closing event that indicates an alarm occurred within five minutes of arming. The default setting is YES.

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 gives the user time to cancel the alarm without an alarm report being sent. Program a delay of 15 – 45 seconds.

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)

Hookup Illustration BHS-4000B



BackCvr_4000B

DC Power	IntelliBus Device to Panel Connection	Service LED Status	Key																		
	IntelliBus Device Programming Connector Port → TB1 Terminals → 1 2 3 4 Service Button Panel SIREN - AUX CLK DATA FIRE	To determine the system's status, continue the number of blinks and compare it to the following table: <table border="1"><thead><tr><th>Blinks*</th><th>Is device configured?</th><th>Significance</th></tr></thead><tbody><tr><td>1</td><td>Yes</td><td>This device</td></tr><tr><td>2</td><td>Yes</td><td>Other devices only</td></tr><tr><td>3</td><td>Yes</td><td>Panel not polling</td></tr><tr><td>4</td><td>No</td><td>Other devices only</td></tr><tr><td>5</td><td>No</td><td>Panel is not polling</td></tr></tbody></table> *Cadence: 250 milliseconds on, 250 milliseconds off, repeated one of five times, then off two seconds.	Blinks*	Is device configured?	Significance	1	Yes	This device	2	Yes	Other devices only	3	Yes	Panel not polling	4	No	Other devices only	5	No	Panel is not polling	B Black wire R Red wire G Green wire Y/W Yellow/White wire 4.7K EOLR Common terminal Maximum combined auxiliary, bell and fire output cannot exceed 1000 mA.
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