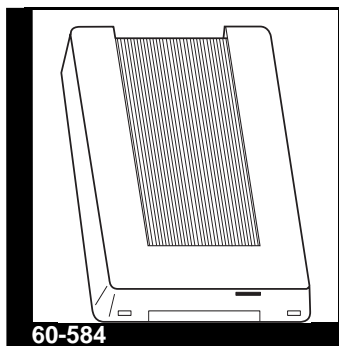# SuperBus™ Hardwire Input Module (HIM)

Document Number: 466-1033 Rev. C
September 1998

60-584

INSTALLATION INSTRUCTIONS

About this Document

This document describes how to install, program, and test the ITI® SuperBus™ Hardwire Input Module (HIM).

SuperBus™ technology is supported by various ITI security panels and by the ITI 1251e access point manager.

For additional HIM programming and operating details, refer to the installation instructions for the specific panel.

Product Summary

The HIM expands the versatility of compatible panels by adding eight zones for hardwire sensors.

UltraGard™ security panels and 1251e access point managers, can support up to eight SuperBus™ HIMs for 64 additional input points. Concord™ hardwired and wireless panels can be expanded to up to 76 input points.

Both normally open and normally closed sensors can be wired to a HIM. The HIM monitors all zones and alerts the panel if there is an open/short circuit, using an end-of-line (EOL) resistor on each loop input.

For additional security, the plastic case includes space for installing a magnetic reed switch* that can provide tamper protection when the switch is connected to one of the HIM zones.

* Not intended for use in UL-listed systems.

HIM Components

The HIM module includes mounting hardware and eight 4.7k-ohm end-of-line (EOL) resistors (part no. 49-365). Power for the HIM is provided by the panel.

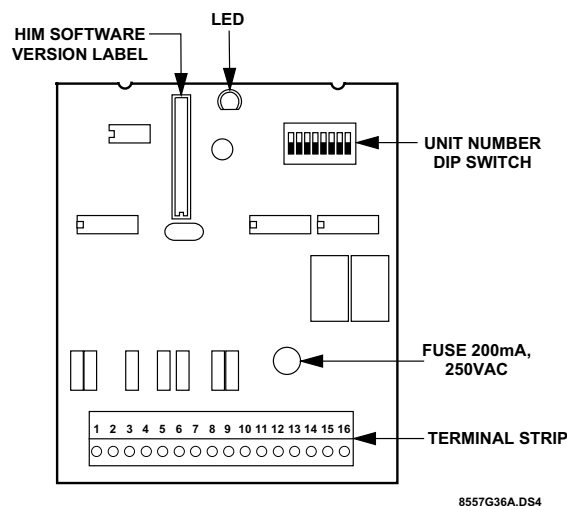Figure 1 shows the main HIM components and Table 1 describes these components.

Figure 1. HIM Circuit Board Components

Table 1. HIM Component Descriptions

Component	Function
Software Version Label	Identifies the installed software version.
Light-Emitting Diode (LED)	Flashes constantly to indicate normal communication to the panel bus.
Unit Number DIP Switch	Determines the ID number of the HIM on the bus.
Fuse	Protects the HIM in case the input power is short circuited.
Terminal Strip	Used for panel and hardwire sensor connections.

Installation Guidelines

- Maximum HIMs per panel:
  - UltraGard™ security systems support up to eight SuperBus™ devices (SuperBus™ Alphanumeric Touchpad, HIM, HOM, ESM, etc.). Concord™ security systems support up to 16 SuperBus™ devices-- all of which may be HIMs.
  - The 1251e access point manager (version 4.0 or later, in p mode) supports up to 24 SuperBus™ devices (8 of which may be HIMs).
- Each SuperBus™ device must have a different unit ID number.
- Do not exceed the panel's total power when using panel power for bus devices and hardwired sensors that require panel power (see specific panel's installation instructions).
- Maximum current draw of each HIM is 18 mA.
- Terminate each hardwired zone with a 4.7k-ohm EOL resistor (ITI part number 49-365). For normally open circuits, wire the resistor in parallel. For normally closed circuits, wire the resistor in series.
- Always install the EOL resistor at the last sensor or device on the circuit; not at the HIM terminals.
- Install a 4.7k-ohm EOL resistor (ITI part number 49-365) on all unused zones.

Tools and Supplies Needed

- Screwdriver
- 3/8 -inch #6-32 self-tapping screws (included)
- #6 panhead screws
- Drill with sheet metal bits to match screws (cabinet mount only)
- 22-gauge or larger stranded hookup wire
- Tamper reed switch* (optional)

* Not intended for use in UL-listed systems.

Installation

The SuperBus HIM can be mounted:

- on a wall,
- inside an Ultragard™ or Concord™ panel cabinet, or
- inside a SuperBus Module cabinet.

CAUTION: To prevent damaging the panel or card, unplug the panel AC Power Transformer and disconnect backup battery before installation.

WARNING: You must be free of all static electricity when handling electronic components. Touch a bare metal surface before touching the circuit board.
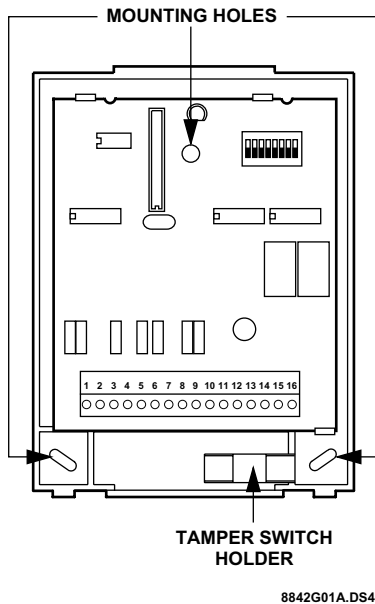
Mounting the HIM on a Wall

1. Turn off the panel power and disconnect the backup battery if required.
2. Remove the HIM cover and set it aside (Figure 2).

PRESS DOWN HERE AND PULL AWAY FROM BASE
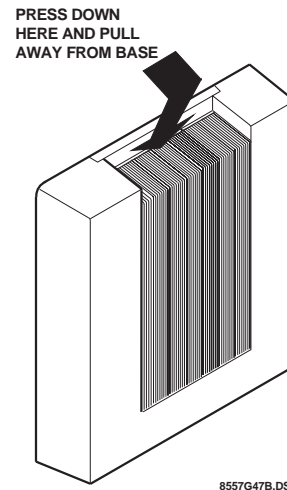
8557G47B.DS4

Figure 2. Removing the Cover

Place the back plate on the wall and mark the mounting holes (Figure 3).

Figure 3. Mounting Holes

3. Drill holes and insert appropriate anchors.
4. Secure the back plate to the wall with panhead screws.

Mounting the HIM in an UltraGard™ Cabinet

1. Turn off the panel power switch, disconnect panel transformer and the backup battery.
2. Remove the HIM cover and set it aside (Figure 2).
3. Place the back plate inside the cabinet at the lower-right corner (opposite the backup battery) and mark the mounting holes (Figure 3).
4. Drill holes in the cabinet wall for #6-32 self-tapping screws.
5. Secure the back plate to the cabinet with #6-32 self-tapping screws.

Mounting the HIM in a Concord™ Cabinet

1. Disconnect panel transformer and the backup battery.
2. Remove and discard the HIM cover (Figure 2).
3. Slide the module back plate onto the two tabs located on the top-left corner of the cabinet.
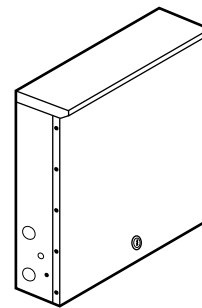
4. Swing the module up and onto the cabinet side tab.
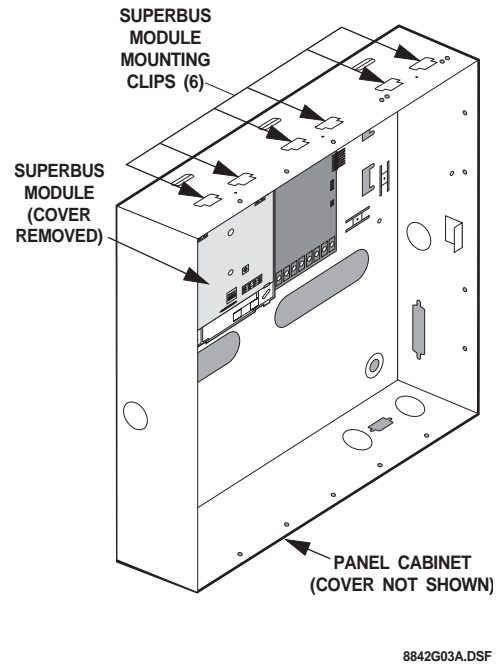
Figure 4. Mounting Module in Concord Cabinet

Mounting the HIM in a SuperBus™ Module Cabinet

The ITI® SuperBus™ Module Cabinet (Figure 5) provides a secure and compact steel housing for up to six SuperBus modules.

Complete instructions for mounting the cabinet are included with the cabinet.

**Figure 5. ITI SuperBus Module Cabinet (60-698)**

Wiring

This section describes how to wire:

■   the HIM to an UltraGard™ panel,

■   the HIM to a Concord™ panel,

■   the HIM to a 1251e access point manager,

■   various hardwire sensors to the HIM terminals.

To wire the HIM to a panel:

1.   Turn off the panel power switch and disconnect the backup battery if required.

2.   Wire the HIM to the panel as shown in Figure 6 and Table 2. For specific SuperBus™ wiring details, see the panel's installation instructions.
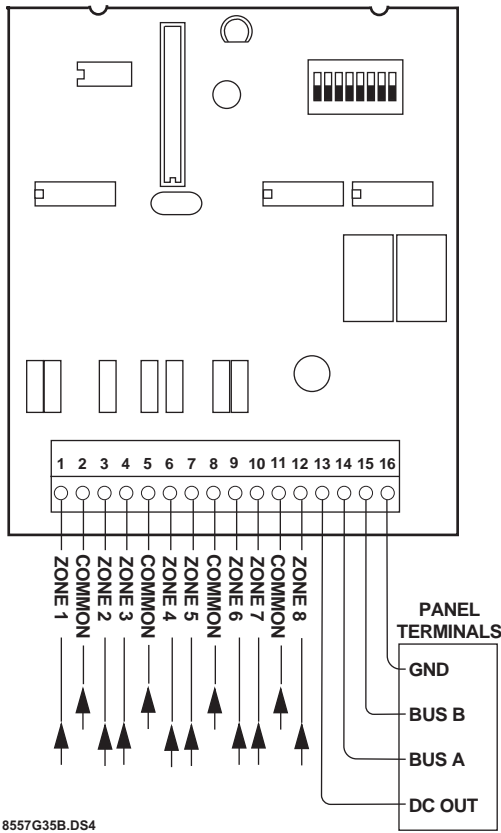
Figure 6. Wiring HIM to the Panel

Table 2. HIM SuperBus/Panel Wiring

HOM Terminals	UtraGard Terminals	Concord Terminals	1251e Terminals
14 (+12VDC)	12	4	B8
15 (BUS A)	13	5	B9
16 (BUS B)	14	6	B10
17 (GND)	15	3	B11

To wire hardwire sensors to the HIM:

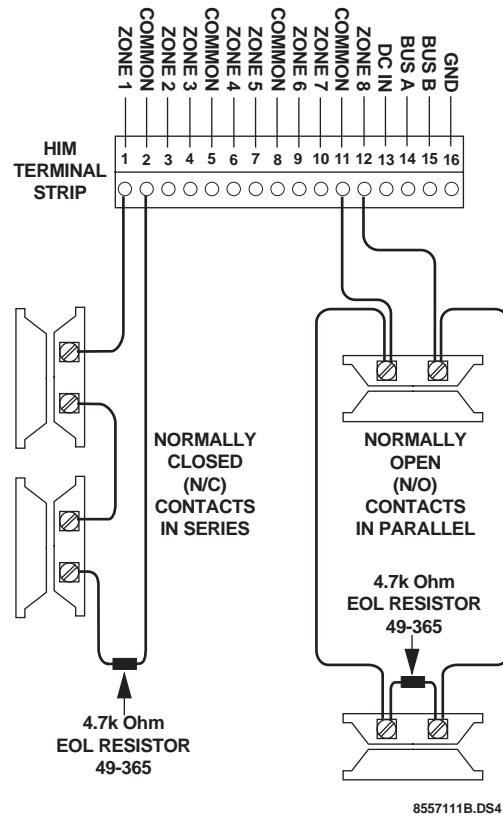1.   See Figure 7 for an example of how to connect up to eight NC or NO circuits to the HIM.

Figure 7. Connecting NC and NO Circuits to the HIM

2.   See Figure 8 for an example of connecting hardwire smoke sensors to the HIM.

8842G02C.DS4

Figure 8. Connecting Hardwire Smoke Sensors to the HIM

Note: When installing the Power Supervision Module (ITI part # 60-391), a 4.7k-ohm EOL resistor is not needed since it is included on the module.

3. Install a 4.7k-ohm EOL resistor (ITI part number 49-365) on all unused HIM zones.

Setting the HIM Unit Number

Before powering up a panel, the HIM unit number must be set so that it can be recognized by the panel. Each bus device requires a different unit number for successful communication and operation with the panel.

Unit number switch changes are not recognized by the HIM until the system is powered down and then up.
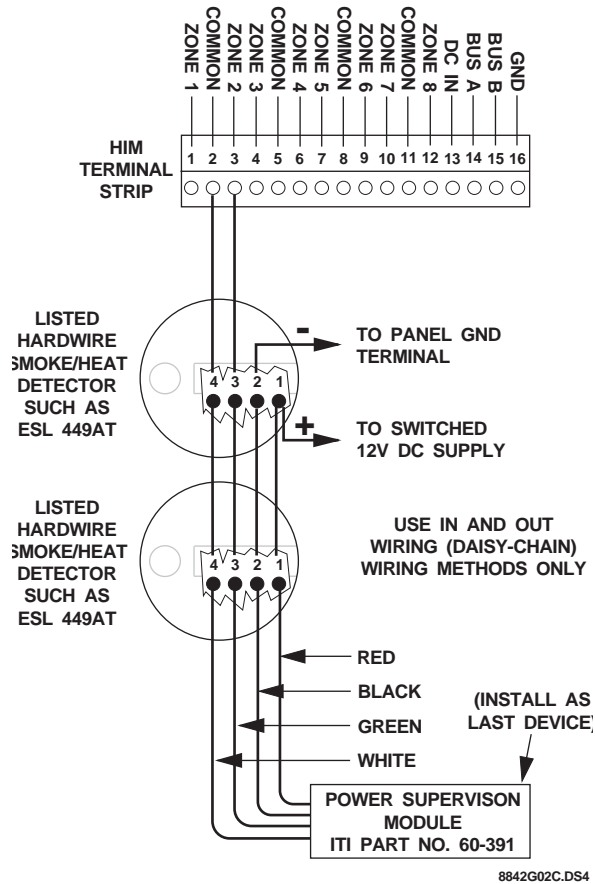
Note: The HIM is not detected by the UltraGard panel until the panel is powered up and switched to program mode.

If the HIM unit number is changed after zone input programming, each zone input on that HIM must be deleted from panel memory and relearned at the new unit number.

UltraGard™ and Concord™ HIM Setup

To set the HIM unit number for UltraGard™ and Concord™ panels:
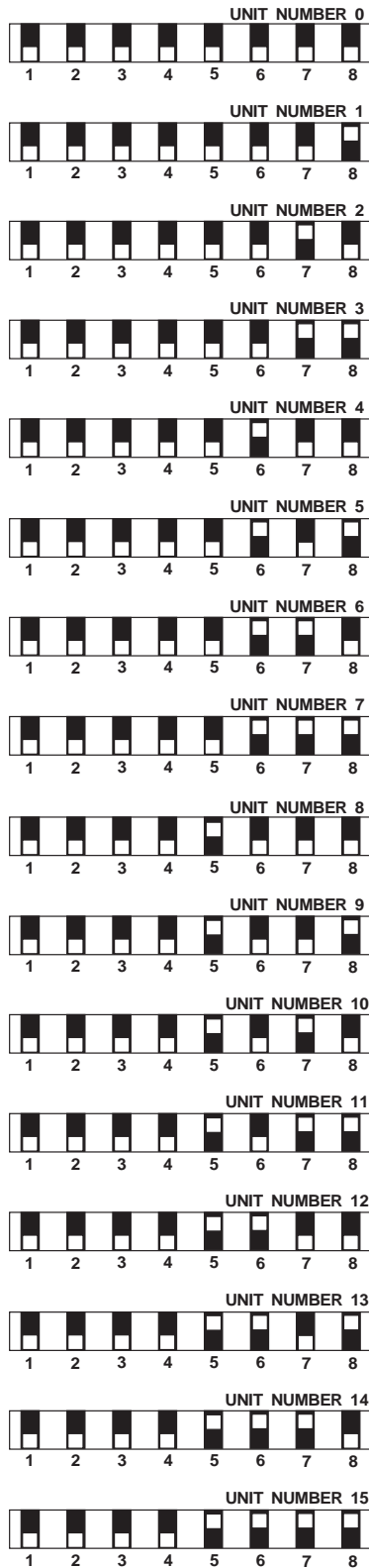
Locate the DIP switches on the HIM circuit board (Figure 1) and set them to the desired unit number, 0-7 for UltraGard™ and 0-15 for Concord™ (Figure 9).

UNIT NUMBER 0

UNIT NUMBER 1

UNIT NUMBER 2

UNIT NUMBER 3

UNIT NUMBER 4

UNIT NUMBER 5

UNIT NUMBER 6

UNIT NUMBER 7

UNIT NUMBER 8

UNIT NUMBER 9

UNIT NUMBER 10

UNIT NUMBER 11

UNIT NUMBER 12

UNIT NUMBER 13

UNIT NUMBER 14

UNIT NUMBER 15

8573G45A.DS4

Figure 9. HIM Unit Number DIP Switch Settings

1251 Access Control HIM Setup

Adding a HIM to a 1251e APM is accomplished through HIM DIP switch settings and ACCESS NT™ software.
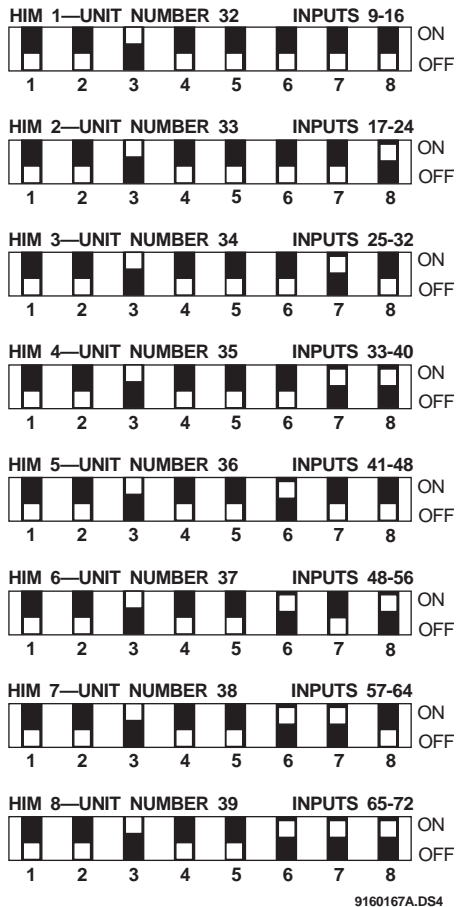
Eight input points are assigned to each unit number (module). *It is important that you assign unit numbers to HIMs sequentially.* If a unit number is skipped, then all eight input points on that module are reported as failed.

To set the HIM unit number:

1. Set the HIM dip switches on the first HIM to the unit number 32 setting as shown in Figure 11.

2. In ACCESS NT, in the New or Edit APM dialog box, click on the Inputs tab.

    –   Select 1 from the Input Modules scroll-down list (Figure 10). Input points 9-16 are now available to be named, edited, and interlocked to output points.

    –   If this is the second HIM you're adding, select 2 from the Input Modules scroll-down list, making input points 17-24 available. Continue assigning HIMs sequentially.

Figure 10. ACCESS NT APM Dialog Box

To install the reed switch:

1. Slide the reed switch into the holder.
2. Connect the reed switch (with an EOL resistor) to the desired HIM loop input.
3. Insert the magnet into the nibs on the top cover. Press the magnet down until it clicks into place.

HIM 1—UNIT NUMBER 32   INPUTS 9-16

HIM 2—UNIT NUMBER 33   INPUTS 17-24

HIM 3—UNIT NUMBER 34   INPUTS 25-32

HIM 4—UNIT NUMBER 35   INPUTS 33-40

HIM 5—UNIT NUMBER 36   INPUTS 41-48

HIM 6—UNIT NUMBER 37   INPUTS 48-56

HIM 7—UNIT NUMBER 38   INPUTS 57-64

HIM 8—UNIT NUMBER 39   INPUTS 65-72

9160167A.DS4

Figure 11. HIM DIP Switch Settings for 1251e APM

After assigning a HIM unit number to each HIM, see the *ITI ACCESS NT Reference Manual* (466-1457) for directions on defining each new point.

Installing a Tamper Switch*

If the HIM is visible, you may want to add tamper detection.* To do this, install a reed switch in the plastic cover and wire the switch to one of the HIM inputs. If the cover is opened, the switch opens also and causes an alarm.

The tamper switch holder is located at the lower-right side of the back plate (Figure 3). The plastic cover holds the magnet.

* Not intended for use in UL-listed systems.

Power Up and Bus Communication

This section describes how to power up the panel and the HIM and get them communicating with each other.

Before Powering Up a 1251e Access Control Panel

To enable bus communication between the HIM and the panel, make sure the bus selection switch on the panel is in the up position. (See Figure 12.)
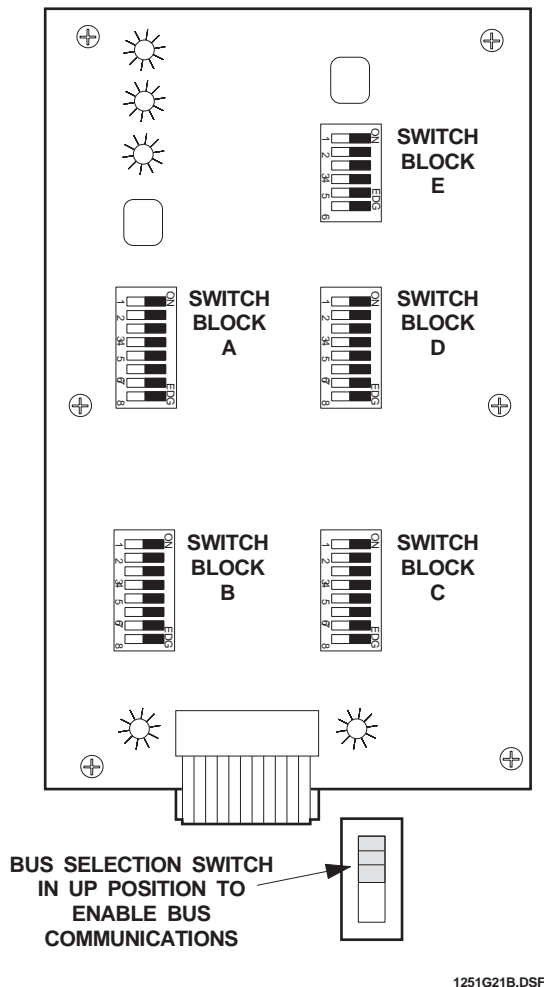

BUS SELECTION SWITCH IN UP POSITION TO ENABLE BUS COMMUNICATIONS

1251G21B.DSF

Figure 12. Bus Selection Switch on 1251e

See the *1251e Installation and Reference Manual* for further directions.

To power up the UltraGard™ or 1251e panel and the HIM:

1. Verify that all wiring at the panel and the HIM is correct.
2. Verify nonconflicting SuperBus™ device unit number settings.
3. Reconnect the panel battery and plug in the AC power transformer.
4. Turn on the panel AC power.
5. Set the UltraGard™ panel's RUN/PROGRAM switch to PROGRAM.

   If the alphanumeric display reads *1-OFF* and the *1* is flashing, you must enter the install code (4-digit installer access code) to get the panel into the program mode.

   The alphanumeric display should indicate *PRO-GRAM MODE* and the HIM LED should be flashing continuously, indicating successful communication to the panel.

Note: If the HIM LED is not flashing continuously, set the RUN/PROGRAM switch to RUN and turn off the panel power switch. Verify that all wiring is correct and that all bus devices are set with different unit numbers.

Whenever the HIM unit number is changed, you must turn off the panel power switch, turn it back on, and then enter the program mode for the panel and HIM to communicate successfully.

To power up the Concord™ panel and the HIM:

After making all wiring connections from the touch-pad to the panel and setting the unit number DIP switches, you are ready to power up the panel. The panel automatically learns the unit number of each bus device when the panel is first powered up and when you enter program mode. However, only alphanumeric touchpads can be used to program the panel. LED touchpads have no programming capabilities.

If you plan on installing systems with no alphanumeric touchpads, it is recommended that you keep an alphanumeric touchpad specifically for programming. This touchpad can be quickly connected and disconnected from the header pins on the lower-right portion of Concord™ panel boards.

Use the following guideline for power up and bus communication.

■ An alphanumeric touchpad must be connected to the panel prior to power up.

To power up the panel and verify HIM bus communication:

1. Verify that all wiring between the panel, touchpad and HIM is correct.
2. Connect the panel battery and plug in the panel transformer. Alphanumeric touchpad displays should momentarily indicate SCANNING BUS DEVICES.
3. Enter program mode by pressing **8 + installer CODE (default = 4321) + 0 + 0**. The touchpad should display *SYSTEM PROGRAMMING*.
4. Press **#** and the display shows *SECURITY*.
5. Press **A** or **B** until the display shows *ACCESSORY MODULES*, then press **#**. The display should read *BUS DEVICES*.
6. Press **#**. The display shows the lowest unit number and its device name. For example, an alphanumeric touchpad unit number display looks like this:
   UNIT - TYPE
   01 - ATP
7. Press **A** or **B** to cycle through all bus device unit numbers until the HIM appears. For example:
   UNIT - TYPE
   05 - HIM
8. After verifying the HIM unit number, press ***** repeatedly until the display shows *SYSTEM PROGRAMMING*.
9. Press **A** or **B** until the display shows *EXIT PROGRAMMING*.
10. Press **#** to exit program mode. The display shows the day, date, and time. The HIM status LED should be flashing continuously, indicating successful communication to the panel.

Note: If the LED is not flashing continuously, turn off the panel power switch. Verify that all wiring is correct and that all bus devices are set with different unit ID numbers.

Whenever the HIM unit ID number is changed, you must either remove panel power, and reapply it or enter the program mode using an alphanumeric touchpad for the panel and HIM to communicate successfully.

Programming and Testing

Refer to the specific panel's installation instructions for adding (learning) hardwire sensors into panel memory and testing sensors.

If the UltraGard™ or Concord™system uses hardwire sensors only, turn off (Receiver Failure) feature in the panel. Refer to the panel installation instructions for details.

Specifications

Compatibility:
– ITI®UltraGard™ and Custom Versions security panels
– Concord™ and Custom Versions security panels
– 1251e and 1251p access point managers, with Access NT™ software

Power Requirements:
12 VDC, 18 mA (maximum) panel and panel backup battery.

Storage Temperature:
-30° F to 120° F (-34° C to 49° C)

Operating Temperature:
40° F to 100° F (4° C to 38° C)

Maximum Humidity:
70% relative humidity, non-condensing

Inputs: Eight supervised hardwire loops.

Dimensions: 5.25" x 4.125" x 1.0" (LxWxD)

Color: Belgian gray

Case Material: ABS plastic

Installation: Wall or panel cabinet mounting

Notices

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
1. This device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Interactive Technologies, Inc. can void the users' authority to operate the equipment.

ITI

WIRELESS

Security
Automation
Access Control

INTERACTIVE TECHNOLOGIES, INC.
2266 SECOND STREET NORTH
NORTH SAINT PAUL, MN 55109
T: 651/777-2690
F: 651/779-4890