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Section 1

Introduction

The Model 4821/4820 is a control/communicator for use in residential and commercial security applications, commercial and residential fire applications. The Model 4821 includes a sophisticated access control system, through which you can monitor and control user access to specific areas of a building (see Section 3 for detailed information on access control).

1.1 Overview of System Features

4820	4821	System Feature
3	3	400 zones, 16 on 4821/4820 board, additional available with expansion devices (Model 4815 zone expander, Model 4825 zone expander, Model 4860C touchpad)
	3	Can use the Model 4421 Door Access Module as an expansion device.
3	3	8 partitions, 8 areas within each partition
	3	32 reporting accounts
3		8 reporting accounts
3	3	24 touchpads / card readers
3	3	One monitored phone line on 4821/4820 board, expandable to two lines with Model 4875 Second Phone Line Expander
	3	100 User Profiles
3		20 User Profiles
	3	1800 User Codes
3		500 Users Codes
	3	50 Time Schedules (with 20 time ranges each)
3		25 Time Schedules (with 20 time ranges each)
3	3	8 Universal Schedules (with 20 time ranges each)
3	3	2.5 amps power available, expandable to 5.0 amps with 4195 Auxiliary Power Module

The 4821 and 4820 are shipped with a Model 9227 transformer and 16 Model 7628EOL resistors (each 4.7 k ohm).

1.1.1 Compatible Modules

Table 1-1 shows the modules available for use with the 4821/4820. The third column of the chart shows where to find installation instructions for the module. (See Figure 1-1 for a block diagram or compatible units.)

Table 1-1: Modules Compatible with the Model 4821/4820

Model	Description	See Section (for more information)
4195 Auxiliary Power Supply	Provides an additional 2.5 amps of power and allows for a second 12-volt, 7.0 AH battery to be added to the system.	Section 4.12 of this manual.
4815 Serial Zone Expander	128-Zone Serial Expander. Used with SmartSensors.	<i>4815 Installation</i> section of this binder (P/N 150909).
4111 SmartSensors	Serial sensors for use with the 4815.	<i>4815 Installation</i> section of this binder (P/N 150909).
4114 End-of-Line Resistor	1.43K ohm EOL resistor for use with Model 4111 SmartSensor. The 4114 is required for UL installations.	<i>4815 Installation</i> section of this binder (P/N 150909).
4181X10 Powerline Interface	For connecting X10 modules to the 4880. (Note: X10 modules are not UL listed for fire and burglary applications.)	<i>4880 Installation</i> section of this binder (P/N 150912).
¹ ² 4205 Slimline Touchpad	For access control installations. Requires the 4421 Door Access Module (see note 1 below). Cannot be used with the 4820 control panel.	Section 3.1 of this manual
¹ 4300 Classic Wiegand Swipe Card Reader	26-bit Wiegand type swipe card reader for indoor or outdoor use. Has fully encapsulated head to withstand tampering and environmental damage. Compatible with 4301 swipe cards.	Section 3.2.3 of this manual
¹ ³ 4301 Wiegand Acces Card	For use with Model 4300 Card Swipe Reader.	
¹ 4305 Proxima Clip-on Badge Proximity Card, ¹ 4306 Proxima Laminated Vinyl Proximity Card, ¹ 4308 Proxima Proximity Key tag	For use with Model 4330/4340/4350 readers.	
¹ 4330 Proxima Mullion Mount Proximity Card Reader	Mullion mount type reader, 26- or 34-bit selectable.	Section 3.2.4 of this manual
¹ 4340 Proxima Standard Range Proximity Card Reader	Standard range reader, 26- or 34-bit selectable.	Section 3.2.4 of this manual
¹ 4350 Proxima Medium Range Proximity Card Reader	Medium range reader, 26- or 34-bit selectable.	Section 3.2.4 of this manual
¹ ³ 4421 Door Access Module	Hardware interface for 26-bit or 34-bit Wiegand type card readers and for the 4205 Slimline Touchpad.	Section 3.1 of this manual

Table 1-1: Modules Compatible with the Model 4821/4820

Model	Description	See Section (for more information)
4824 Serial/Printer Interface	Provides one RS-232 serial port and one parallel printer port, which can be programmed to output events in English text or in either of the reporting formats (SIA or Ademco Contact ID). Can be used to send data to the panel for on-site programming or for connection to a PC running 4850ACAS software.	<i>4824 Installation</i> section of this binder (P/N 150911).
4825 Hardwire Zone Expander	64-Zone Hardwire Expander.	<i>4825 Installation</i> section of this binder (P/N 150910).
4880 Status Output Module	Provides 16 outputs and 4 relays that are fully programmable. Also provides an X10 interface. (Note: X10 modules are not UL listed for fire and burglary applications.)	<i>4880 Installation</i> section of this binder (P/N 150912).
4860C Touchpad	Fully featured commercial touchpad using an LCD to announce alarms, troubles and other system messages. Has 2 zone inputs that can be used for hardwiring any type of zone input, or for door access. Has a built-in card reader interface.	In this manual, refer to Section 4.14 for installation as a system touchpad. Section 3 and 5 for operation of system touchpad. Section 4.15.5 for installation as a system zone.
4860R (gray) and 4860Rx (bright white) Touchpad	Fully featured residential touchpad using an LCD to announce alarms, troubles and other system messages. Only difference between these two models is color of plastic. 4860R is gray; 4860Rx is bright white.	Section 4.14 of this manual for installation instructions. Section 4 of this manual for operation instructions.
4875 Second Phone Line Monitor	Provides termination for second phone line. Required if two phone lines are used.	Section 4.20.1 of this manual.
4884 Bell Module	Provides termination for a supervised bell	Section 4.19 of this manual.
4890 Accessory Enclosure	Secured cabinet to mount additional modules such as 4815, 4421, 4880 etc. (Required for UL installations.)	Section 1.1.2 of this manual.
5211 Ground Start Relay	Required for applications using a ground start telephone network. (Not UL listed.)	Section 4.20.2 of this manual.
6712 Battery	12 VDC 7 amp hour Gell Cell battery for use with the 4821/4820.	Section 4.11 of this manual.
7628 End-of-Line Resistor	4.7 k ohms EOL resistor used for all input zones (except 4815 SmartSensor zones). 16 EOLs are shipped with the 4821/4820.	Section 4.15 of this manual.
7860 Telephone Cord	RJ31X cord for connecting phone line to the 4821/4820.	Section 4.20 of this manual.
9000 Receiver	For use with the SIA-20 format.	Section 7 of this manual. (Section 7 also lists other receivers compatible with the 4821/4820.)

Model 4821/4820 Control/Communicator Installation Manual

1. Not UL listed with 4820 control panel.
2. Not UL listed for access control.
3. Can not be used with the 4820 control panel.

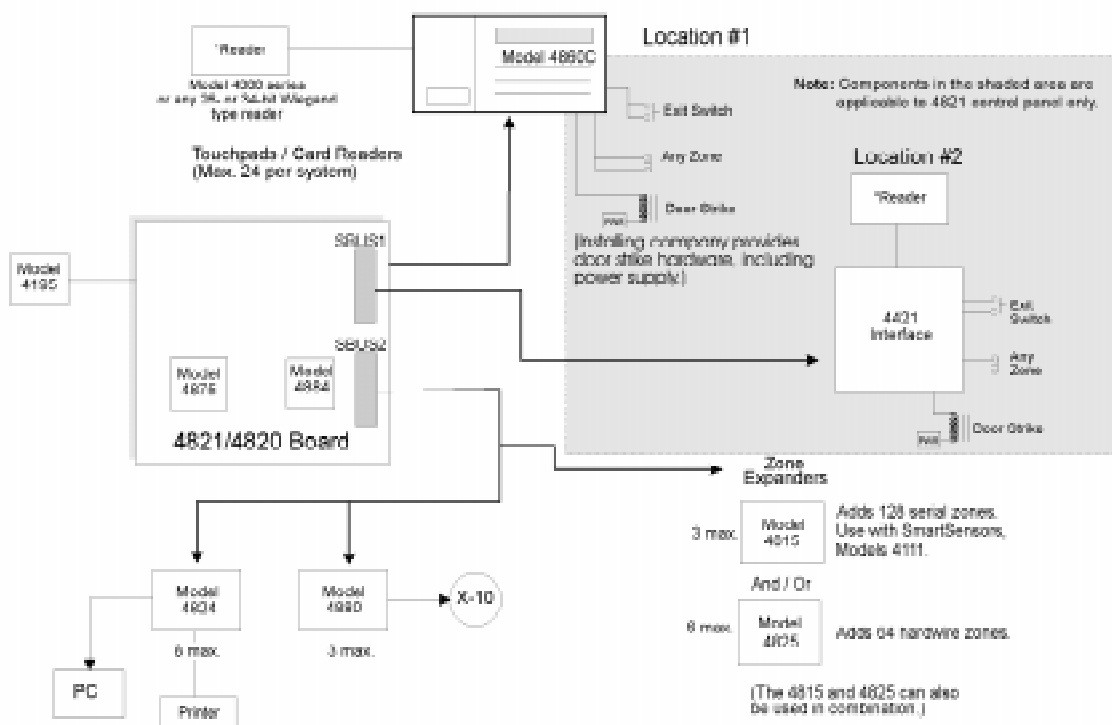


Figure 1-1 Model 4821/4820 and Compatible Modules

1.1.2 Accessory Enclosure

In applications where more than two additional 4815 modules are to be used in the control panel “snap tracks”, a model 4890 alarm accessory enclosure is required. (See Section 1.4.3 for UL requirements.) The Model 4890 has the same dimensions as the 4821/4820 control panel enclosure and contains two additional snap tracks. One snap track is designed for smaller width boards such as the 4815 control module. The other snap track is sized to accommodate the larger PC boards such as the 4824, 4880, and 4421 modules.

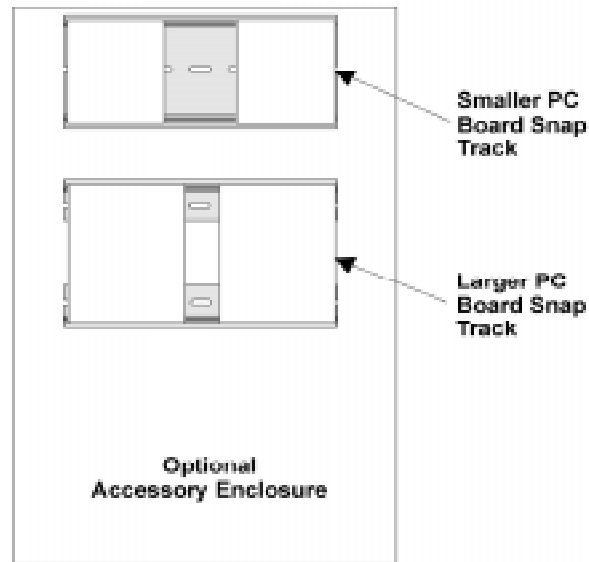


Figure 1-1 4890 Accessory Enclosure

1.2 How to Use this Manual

The manual uses the following conventions:

- A clear rectangle represents a touchpad button.
- Pages of the manual are numbered by section. For example, a page numbered as “5-1” is Page 1 of Section 5.

1.3 How to Contact Silent Knight

If you have a question or encounter a problem not covered in this manual, contact: Silent Knight Technical Support at 800-328-0103 (or 612-493-6455). To order parts, contact Silent Knight Sales at 800-446-6444 (or 612-493-6435).

1.4 Agency Requirements

1.4.1 Telephone Requirements

If requested by the telephone company, the following information must be provided before connecting this device to the phone lines:

- | | | |
|----|--|--------------------------------|
| A. | Manufacturer: | Silent Knight Security Systems |
| B. | Model Number: | 4821/4820 |
| C. | FCC Registration Number: | AC6USA-22755-AL-E |
| D. | Type of jack (to be installed by the telephone company): | RJ31X |
| | Ringer equivalence: | 0.9B |

This device may not be connected directly to coin telephones or party line services.

This device cannot be adjusted or repaired in the field. In case of trouble with the device, notify the installing company or return the device to the manufacturer:

Silent Knight Security Systems
7550 Meridian Circle
Maple Grove, MN 55369-4927
800-328-0103 or 612-493-6455

The telephone company may make changes in its facilities, equipment, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice to allow you to make the necessary modifications to maintain uninterrupted service.

1.4.2 FCC Warning

This device has been verified to comply with FCC Rules Part 15. Operation is subject to the two following conditions: (1) This device may not cause radio interference, and (2) This device must accept any interference received including interference that may cause undesired operation.

1.4.3 UL Requirements

If installed in accordance with these requirements, the Model 4821/4820 is UL listed for Grade A Mercantile, Local Police Station Connect with Basic Line Security, and Grade B and C Central Station Service.

Follow the requirements below if you are installing a UL listed application. See Section 1.4.3.1 for Household Fire and Burglary Warning System installation requirements. See Section 1.4.3.2 for Grade A Mercantile installation requirements.

1. The Model 4860C (commercial) or 4860R (residential) touchpad must be used. Each SBUS must have at least one touchpad connected (minimum of two touchpads per installation).
2. Entry delays must not be longer than 45 seconds. An exit delay must not be longer than 60 seconds.
3. All panic zones (including touchpad panic zones) must be programmed as silent and invisible.

Note: Silent and invisible reports can be seen by pressing status or reviewing the event history.

4. The Audible Trouble Alert When Armed option (programmed in Area Menu) must be selected.
5. Do NOT select the following optional features:
 - Automatic closing or opening (programmed in the Area Menu)
 - Swinger Bypass Timeout (programmed in Area Menu)
6. Partitions are allowed in UL burglary installations only if the protected premises falls under one ownership and the operation of a single authority. An example of an acceptable installation is a common building operated by one company which may need to subdivide the system to allow independent entry and exit. A strip mall is an example of an application that would *not* be allowed in a UL installation. Partitioning **cannot** be used for fire zones. (See Item 9. below for additional information about partitioning.)
7. If the cross-alarm feature is used, it must be used only by detectors that share a common field of view.
8. A complete functional checkout of the system must be performed any time the system is programmed or reprogrammed. (Zone bypassing or other temporary changes necessary for troubleshooting are an exception to this requirement.)
9. Bells must be the primary source of alarm annunciation. Speakers can be used as an additional source. Grade C Central Station installations are an exception; bells are not required in these installations. In a multi-partition system, bells must be protected by a 24-hour circuit.
10. Opening and closing signals must be enabled in a Central Station installation.

11. In applications requiring more than two modules 4815 to be located in the control panel snap track, a model 4890 alarm accessory enclosure is required. (See Section 1.1.2.)
12. Do not eliminate the default I/O programming script. Doing so could cause the bell sounds to be deleted from the system.

Note: The script can be modified to include additional functions, but the default statements must remain intact.

1.4.3.1 Household Burglary Warning System

If you are installing the 4821/4820 in a UL listed residential installation, follow the requirement below in addition to those listed in Section 1.4.3.

The Audio Shutdown Delay option must be programmed as 4 minutes.

1.4.3.2 Grade A Mercantile

For a Grade A Mercantile listing, follow the requirements below in addition to those listed in Section 1.4.3.

1. You must program a time schedule for auto testing to occur (programmed in Time Schedules Menu).
2. The Audio Shutdown Delay option must be programmed to 15 minutes.
3. A listed tamper switch must protect the inside front door of the enclosure. This switch must be connected to an intrusion input zone of the control unit which is programmed as a perimeter zone.
4. All unused knockout holes on the cabinet must be plugged using bolts and washers. (Model 7600 is a kit available from Silent Knight for this purpose.) See Section 4.7 for installation instructions.
5. Four pan head screws #8x3", type AB (thread forming tapping screws) must be placed in the 4821/4820 cabinet cover to increase the panel's attack resistance.
6. A separately listed Ademco AB-12 Bell in Box must be used with the control unit.
7. The tamper switches of the alarm bell must be connected to a 24-hour zone. No other initiating devices may be connected to this loop. The outer housing of the bell box must be grounded. The bell circuit should be installed in accordance with UL requirements.
8. All bell wiring must be run in its own conduit and must be connected to the control unit using its own knockout hole.

1.4.3.3 Commercial & Residential Fire Digital Alarm Communicator Transmitter (DACT) UL 864, NFPA 72 (Chapter 4)

The DACT listing allows the 4821/4820 to be used to monitor an existing local fire alarm control and/or a sprinkler system. For the 4821/4820 to be used as a DACT, the following requirements must be complied with:

Hardware:

- A minimum of one 4860C Commercial Touchpad.
- Two 4165 Transformer Covers.
- A 4195 Auxiliary Power Supply.
- A 4875 Dual Phone Line Module.
- A 4884 Bell Module.
- Two 6712 12 VDC 7AH Standby Battery or Equivalent.
- Power switch bypass jumpers **must not** be cut.

Programming:

The following options must be selected when programming the control panel. (See Section 6 Programming for programming information.):

1. In the Low AC Report Time (Section 6.3.1.1) must be set between 6 and 12 hours.
2. In the Phone Line Enabled (Section 6.3.1.2) 2 Phone Lines option must be must be selected.
3. In the Ground Start Telephone Network Used option (Section 6.3.1.2) must remain disabled.
4. In the Phone Line Monitor Enabled option (Section 6.3.1.2) the Line Monitor option must be selected.

1.4.3.4 Access Control UL-294

All 4860C touchpads must be located within the protected premises. The 4820 is not listed for access control.(See Section 3 for access control installation information.)

Section 2

Quick Start

This section is intended to help you determine if any problems exist with the system you are about to install. Perform the steps below in the order shown here.

1. Wire a touchpad to one of the four-wire serial buses (SBUS). See Section 4.14 for more information. (See *Note* below.)
2. Plug in the transformer and apply AC.
3. Hook up the battery.
4. The touchpad will initialize. Several messages, including the touchpad serial number, will display for approximately one second. When the message “482x Engaged” (x indicates that the display would read 1 for a 4821, or 0 for a 4820) is displayed, it means the system has booted up successfully. The default date and time is displayed.
5. Set system date and time. You may use the default code to test the system. See the instructions on the next page for more information.

If you are able to set the date and time successfully, it means the system is up and running.

6. From here you can send your programmable options to the panel, if you have programmed them through the Model 5580 Upload-Download Software. (See Section 2.2.)

Note: To attach a temporary touchpad to the system, you do not need to know its serial number. To permanently attach any SBUS device, including a touchpad, you must enter its serial number into the system.

2.1 Setting System Time and Date

To set the time:

1. Press [Code]. (Installer Code is factory-programmed as 1234.)
2. At the menu prompt, enter to select “Time”.
3. Enter digit(s) for hour in 24-hour military format, then press .
4. Enter digit(s) for minute, then .

Note that if the “Auto DST Adjustment” feature has been enabled, a message will display when you set the time.

Example:

To change the system time to 3:45 p.m., the keystrokes are:

[Code]

To set the date:

1. [Code]
2. At the menu prompt, enter to select “Date”.
3. Enter digit(s) for month, then press .
4. Enter digit(s) for date, then press .
5. Enter four digits for year, then press .

Example:

To change the system date to July 15, 1996, the keystrokes are:

[Code]

2.2 Sending Data to the Panel

See Section 5.10 of this manual for complete information about communication.

1. Press [Installer or Maintenance Code]
2. At the menu, select:
 - for Internal Phone. This option is for downloading via the phone lines.
 - for 4824 Modem. With this type of communication, a Hayes compatible modem is connected to both the 4824 and the PC, allowing for faster data transmission.
 - for 4824 Direct. This option is for directly connecting the 4824 to the computer using a null modem cable (both the computer and the 4821/4820 are on-site).
3. If you select either 4824 option (2 or 3), you will be prompted to select the 4824 from the list of 4824s installed in the system.
4. If the phone number that displays is not correct, enter the correct digits and press . (If the phone number is correct, press to bypass this step.) If you have selected the 4824 Direct option, this step will not appear.
5. If the Account number that displays is not correct, enter the correct digits and press . (If the account number is correct, press to bypass this step.)
6. The system will attempt to communicate. If the communication attempt was successful, the panel will re-initialize. Do not power the system down during the re-initialization period.

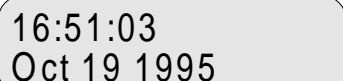
Note: If the 5580 has no task in its queue, the panel will always send an upload. The 5580 must have a download in its queue for this account in order for the download to occur.

2.3 Identifying Serial Numbers and Revision Levels

This section describes how to determine the levels of hardware and 4821/4820 software that are used with your panel.

2.3.1 Operating System Revision Level

Press to see a display of the revision date.



16:51:03
Oct 19 1995

2.3.2 Hardware Revision Levels and Serial Numbers

Hardware revision levels and serial numbers are printed on labels on the circuit board. Look for “S/N” followed by an 8-digit number.

Bar coding



Serial # | Rev #
Model #

2.4 Installation Records

You can use the following pages to keep a record of options programmed for an installation. You may want to use the charts for up-front planning of your installations. Copy the pages as needed for all installations.

2.4.1 Serial Number Quick Reference

Use the chart below to keep track of hardware device serial numbers.

Customer Name _____

Location _____

Account Number _____

Installation Code _____

Device #	Description	Serial #
4421 Door Access Module / 4860 Touchpads		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

Device #	Description	Serial #
4880 Status Output Module		
1		
2		
3		
4824 Serial/Parallel Module		
1		
2		
3		
4		
5		
6		
7		
8		
4825 Hardwire Zone Expander		
1		
2		
3		
4		
5		
6		
4815 Serial Zone Expander		
1		
2		
3		

2.4.1.1 Zone Record

Use the charts in this section to record zone identification information.

Table 2-1: Internal Zones

Zone #	Hardware Point	Location	Partition #	Areas
	1			1 2 3 4 5 6 7 8
	2			1 2 3 4 5 6 7 8
	3			1 2 3 4 5 6 7 8
	4			1 2 3 4 5 6 7 8
	5			1 2 3 4 5 6 7 8
	6			1 2 3 4 5 6 7 8
	7			1 2 3 4 5 6 7 8
	8			1 2 3 4 5 6 7 8
	9			1 2 3 4 5 6 7 8
	10			1 2 3 4 5 6 7 8
	11			1 2 3 4 5 6 7 8
	12			1 2 3 4 5 6 7 8
	13			1 2 3 4 5 6 7 8
	14			1 2 3 4 5 6 7 8
	15			1 2 3 4 5 6 7 8
	16			1 2 3 4 5 6 7 8

4825 Hardwire Zone Expander _____ Serial Number _____ Device Number _____

Zone	H/W Pt	Location	Partition	Areas
	1			1 2 3 4 5 6 7 8
	2			1 2 3 4 5 6 7 8
	3			1 2 3 4 5 6 7 8
	4			1 2 3 4 5 6 7 8
	5			1 2 3 4 5 6 7 8
	6			1 2 3 4 5 6 7 8
	7			1 2 3 4 5 6 7 8
	8			1 2 3 4 5 6 7 8
	9			1 2 3 4 5 6 7 8
	10			1 2 3 4 5 6 7 8
	11			1 2 3 4 5 6 7 8
	12			1 2 3 4 5 6 7 8
	13			1 2 3 4 5 6 7 8
	14			1 2 3 4 5 6 7 8
	15			1 2 3 4 5 6 7 8
	16			1 2 3 4 5 6 7 8
	17			1 2 3 4 5 6 7 8
	18			1 2 3 4 5 6 7 8
	19			1 2 3 4 5 6 7 8
	20			1 2 3 4 5 6 7 8
	21			1 2 3 4 5 6 7 8
	22			1 2 3 4 5 6 7 8
	23			1 2 3 4 5 6 7 8
	24			1 2 3 4 5 6 7 8
	25			1 2 3 4 5 6 7 8
	26			1 2 3 4 5 6 7 8
	27			1 2 3 4 5 6 7 8
	28			1 2 3 4 5 6 7 8
	29			1 2 3 4 5 6 7 8
	30			1 2 3 4 5 6 7 8
	31			1 2 3 4 5 6 7 8
	32			1 2 3 4 5 6 7 8

Zone	H/W Pt	Location	Partition	Areas
	33			1 2 3 4 5 6 7 8
	34			1 2 3 4 5 6 7 8
	35			1 2 3 4 5 6 7 8
	36			1 2 3 4 5 6 7 8
	37			1 2 3 4 5 6 7 8
	38			1 2 3 4 5 6 7 8
	39			1 2 3 4 5 6 7 8
	40			1 2 3 4 5 6 7 8
	41			1 2 3 4 5 6 7 8
	42			1 2 3 4 5 6 7 8
	43			1 2 3 4 5 6 7 8
	44			1 2 3 4 5 6 7 8
	45			1 2 3 4 5 6 7 8
	46			1 2 3 4 5 6 7 8
	47			1 2 3 4 5 6 7 8
	48			1 2 3 4 5 6 7 8
	49			1 2 3 4 5 6 7 8
	50			1 2 3 4 5 6 7 8
	51			1 2 3 4 5 6 7 8
	52			1 2 3 4 5 6 7 8
	53			1 2 3 4 5 6 7 8
	54			1 2 3 4 5 6 7 8
	55			1 2 3 4 5 6 7 8
	56			1 2 3 4 5 6 7 8
	57			1 2 3 4 5 6 7 8
	58			1 2 3 4 5 6 7 8
	59			1 2 3 4 5 6 7 8
	60			1 2 3 4 5 6 7 8
	61			1 2 3 4 5 6 7 8
	62			1 2 3 4 5 6 7 8
	63			1 2 3 4 5 6 7 8
	64			1 2 3 4 5 6 7 8

4815 Expander

Loop1 Addresses Serial Number _____ Device Number _____

Zone	H/W Pt	Location	Partition	Areas
	Loop1, Addr 1			1 2 3 4 5 6 7 8
	Loop1, Addr 2			1 2 3 4 5 6 7 8
	Loop1, Addr 3			1 2 3 4 5 6 7 8
	Loop1, Addr 4			1 2 3 4 5 6 7 8
	Loop1, Addr 5			1 2 3 4 5 6 7 8
	Loop1, Addr 6			1 2 3 4 5 6 7 8
	Loop1, Addr 7			1 2 3 4 5 6 7 8
	Loop1, Addr 8			1 2 3 4 5 6 7 8
	Loop1, Addr 9			1 2 3 4 5 6 7 8
	Loop1, Addr 10			1 2 3 4 5 6 7 8
	Loop1, Addr 11			1 2 3 4 5 6 7 8
	Loop1, Addr 12			1 2 3 4 5 6 7 8
	Loop1, Addr 13			1 2 3 4 5 6 7 8
	Loop1, Addr 14			1 2 3 4 5 6 7 8
	Loop1, Addr 15			1 2 3 4 5 6 7 8
	Loop1, Addr 16			1 2 3 4 5 6 7 8
	Loop1, Addr 17			1 2 3 4 5 6 7 8
	Loop1, Addr 18			1 2 3 4 5 6 7 8
	Loop1, Addr 19			1 2 3 4 5 6 7 8
	Loop1, Addr 20			1 2 3 4 5 6 7 8
	Loop1, Addr 21			1 2 3 4 5 6 7 8
	Loop1, Addr 22			1 2 3 4 5 6 7 8
	Loop1, Addr 23			1 2 3 4 5 6 7 8
	Loop1, Addr 24			1 2 3 4 5 6 7 8
	Loop1, Addr 25			1 2 3 4 5 6 7 8
	Loop1, Addr 26			1 2 3 4 5 6 7 8
	Loop1, Addr 27			1 2 3 4 5 6 7 8
	Loop1, Addr 28			1 2 3 4 5 6 7 8
	Loop1, Addr 29			1 2 3 4 5 6 7 8
	Loop1, Addr 30			1 2 3 4 5 6 7 8
	Loop1, Addr 31			1 2 3 4 5 6 7 8
	Loop1, Addr 32			1 2 3 4 5 6 7 8

Zone	H/W Pt	Location	Partition	Areas
	Loop1, Addr 33			1 2 3 4 5 6 7 8
	Loop1, Addr 34			1 2 3 4 5 6 7 8
	Loop1, Addr 35			1 2 3 4 5 6 7 8
	Loop1, Addr 36			1 2 3 4 5 6 7 8
	Loop1, Addr 37			1 2 3 4 5 6 7 8
	Loop1, Addr 38			1 2 3 4 5 6 7 8
	Loop1, Addr 39			1 2 3 4 5 6 7 8
	Loop1, Addr 40			1 2 3 4 5 6 7 8
	Loop1, Addr 41			1 2 3 4 5 6 7 8
	Loop1, Addr 42			1 2 3 4 5 6 7 8
	Loop1, Addr 43			1 2 3 4 5 6 7 8
	Loop1, Addr 44			1 2 3 4 5 6 7 8
	Loop1, Addr 45			1 2 3 4 5 6 7 8
	Loop1, Addr 46			1 2 3 4 5 6 7 8
	Loop1, Addr 47			1 2 3 4 5 6 7 8
	Loop1, Addr 48			1 2 3 4 5 6 7 8
	Loop1, Addr 49			1 2 3 4 5 6 7 8
	Loop1, Addr 50			1 2 3 4 5 6 7 8
	Loop1, Addr 51			1 2 3 4 5 6 7 8
	Loop1, Addr 52			1 2 3 4 5 6 7 8
	Loop1, Addr 53			1 2 3 4 5 6 7 8
	Loop1, Addr 54			1 2 3 4 5 6 7 8
	Loop1, Addr 55			1 2 3 4 5 6 7 8
	Loop1, Addr 56			1 2 3 4 5 6 7 8
	Loop1, Addr 57			1 2 3 4 5 6 7 8
	Loop1, Addr 58			1 2 3 4 5 6 7 8
	Loop1, Addr 59			1 2 3 4 5 6 7 8
	Loop1, Addr 60			1 2 3 4 5 6 7 8
	Loop1, Addr 61			1 2 3 4 5 6 7 8
	Loop1, Addr 62			1 2 3 4 5 6 7 8
	Loop1, Addr 63			1 2 3 4 5 6 7 8
	Loop1, Addr 64			1 2 3 4 5 6 7 8

4815 Expander

Loop2

Zone	H/W Pt	Location	Partition	Areas
	Loop2, Addr 1			1 2 3 4 5 6 7 8
	Loop2, Addr 2			1 2 3 4 5 6 7 8
	Loop2, Addr 3			1 2 3 4 5 6 7 8
	Loop2, Addr 4			1 2 3 4 5 6 7 8
	Loop2, Addr 5			1 2 3 4 5 6 7 8
	Loop2, Addr 6			1 2 3 4 5 6 7 8
	Loop2, Addr 7			1 2 3 4 5 6 7 8
	Loop2, Addr 8			1 2 3 4 5 6 7 8
	Loop2, Addr 9			1 2 3 4 5 6 7 8
	Loop2, Addr 10			1 2 3 4 5 6 7 8
	Loop2, Addr 11			1 2 3 4 5 6 7 8
	Loop2, Addr 12			1 2 3 4 5 6 7 8
	Loop2, Addr 13			1 2 3 4 5 6 7 8
	Loop2, Addr 14			1 2 3 4 5 6 7 8
	Loop2, Addr 15			1 2 3 4 5 6 7 8
	Loop2, Addr 16			1 2 3 4 5 6 7 8
	Loop2, Addr 17			1 2 3 4 5 6 7 8
	Loop2, Addr 18			1 2 3 4 5 6 7 8
	Loop2, Addr 19			1 2 3 4 5 6 7 8
	Loop2, Addr 20			1 2 3 4 5 6 7 8
	Loop2, Addr 21			1 2 3 4 5 6 7 8
	Loop2, Addr 22			1 2 3 4 5 6 7 8
	Loop2, Addr 23			1 2 3 4 5 6 7 8
	Loop2, Addr 24			1 2 3 4 5 6 7 8
	Loop2, Addr 25			1 2 3 4 5 6 7 8
	Loop2, Addr 26			1 2 3 4 5 6 7 8
	Loop2, Addr 27			1 2 3 4 5 6 7 8
	Loop2, Addr 28			1 2 3 4 5 6 7 8
	Loop2, Addr 29			1 2 3 4 5 6 7 8
	Loop2, Addr 30			1 2 3 4 5 6 7 8
	Loop2, Addr 31			1 2 3 4 5 6 7 8
	Loop2, Addr 32			1 2 3 4 5 6 7 8

Zone	H/W Pt	Location	Partition	Areas
	Loop2, Addr 33			1 2 3 4 5 6 7 8
	Loop2, Addr 34			1 2 3 4 5 6 7 8
	Loop2, Addr 35			1 2 3 4 5 6 7 8
	Loop2, Addr 36			1 2 3 4 5 6 7 8
	Loop2, Addr 37			1 2 3 4 5 6 7 8
	Loop2, Addr 38			1 2 3 4 5 6 7 8
	Loop2, Addr 39			1 2 3 4 5 6 7 8
	Loop2, Addr 40			1 2 3 4 5 6 7 8
	Loop2, Addr 41			1 2 3 4 5 6 7 8
	Loop2, Addr 42			1 2 3 4 5 6 7 8
	Loop2, Addr 43			1 2 3 4 5 6 7 8
	Loop2, Addr 44			1 2 3 4 5 6 7 8
	Loop2, Addr 45			1 2 3 4 5 6 7 8
	Loop2, Addr 46			1 2 3 4 5 6 7 8
	Loop2, Addr 47			1 2 3 4 5 6 7 8
	Loop2, Addr 48			1 2 3 4 5 6 7 8
	Loop2, Addr 49			1 2 3 4 5 6 7 8
	Loop2, Addr 50			1 2 3 4 5 6 7 8
	Loop2, Addr 51			1 2 3 4 5 6 7 8
	Loop2, Addr 52			1 2 3 4 5 6 7 8
	Loop2, Addr 53			1 2 3 4 5 6 7 8
	Loop2, Addr 54			1 2 3 4 5 6 7 8
	Loop2, Addr 55			1 2 3 4 5 6 7 8
	Loop2, Addr 56			1 2 3 4 5 6 7 8
	Loop2, Addr 57			1 2 3 4 5 6 7 8
	Loop2, Addr 58			1 2 3 4 5 6 7 8
	Loop2, Addr 59			1 2 3 4 5 6 7 8
	Loop2, Addr 60			1 2 3 4 5 6 7 8
	Loop2, Addr 61			1 2 3 4 5 6 7 8
	Loop2, Addr 62			1 2 3 4 5 6 7 8
	Loop2, Addr 63			1 2 3 4 5 6 7 8
	Loop2, Addr 64			1 2 3 4 5 6 7 8

Table 3-1: Model 4421 Terminal Description

Name	Wire Color	Terminal Description	Electrical Rating
1 S-		Expansion Bus (-)	0 VDC (circuit ground)
2 S+		Expansion Bus (+)	12 VDC, 1 Amp max.
3 A		Expansion Bus (data)	5 VDC
4 B		Expansion Bus (data)	5 VDC
5 +PZT		PZT power output	4 VDC, 10 mA
6 LED PWR	Brown	4205 LED output	8.3 VDC, 10 mA
7 COL1	Red	4205 column 1 output	
8 COL0	Orange	4205 column 0 output	
9 KEY2	Yellow	4205 row 4 input	
10 KEY1	Green	4205 row 1 input	
11 KEY0	Blue	4205 row 0 input	
12 GROUND	Black & Shield	Circuit Ground	
13 +READER	Red	Card reader power output	5 VDC, 75 mA
14 DATA 1s	White	Card reader data 1's input	
15 DATA 0s	Green	Card reader data 0's input	
16 CR LED	Brown	Card reader LED output	3.75 VDC, 25 mA
17 N.O. 1		Relay Contact (Normally Open) #1	2.5 Amps max. @ 24 VDC
18 COMN 1		Relay Contact (Common) #1	
19 N.C. 1		Relay Contact (Normally Closed) #1	
20 1		Zone Input 1	14 VDC, 1.5 mA
21 C+		Zone power	12 VDC, 3.0 mA
22 2		Zone Input 2	14 VDC, 1.5 mA
23 N.O. 2		Relay Contact (Normally Open) #2	2.5 Amps max. @ 24 VDC
24 COMN 2		Relay Contact (Common) #2	

3.1.1 Model 4421 Connection to the 4821

The 4421 Interface connects to the 4821 panel via the SBUS. Connect the 4421 to the panel as shown in Figure 3-2. See Section 4 for complete information about SBUS device connections.

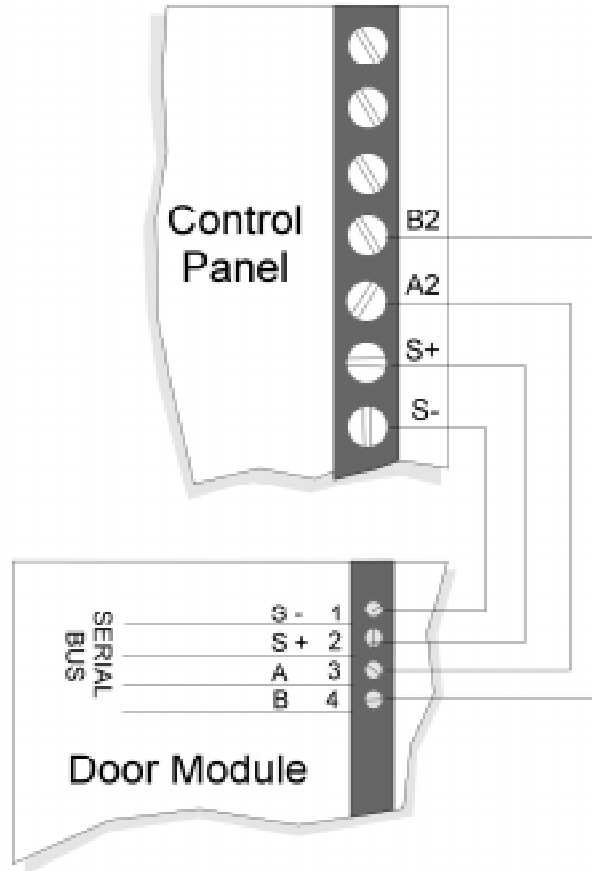


Figure 3-2 Wiring Diagram 4421of N to the Control Panel

3.1.2 4205 Touchpad Connection to 4421

The 4205 Access Control Touchpad is connected to the 4421 as shown in Figure 3-3.

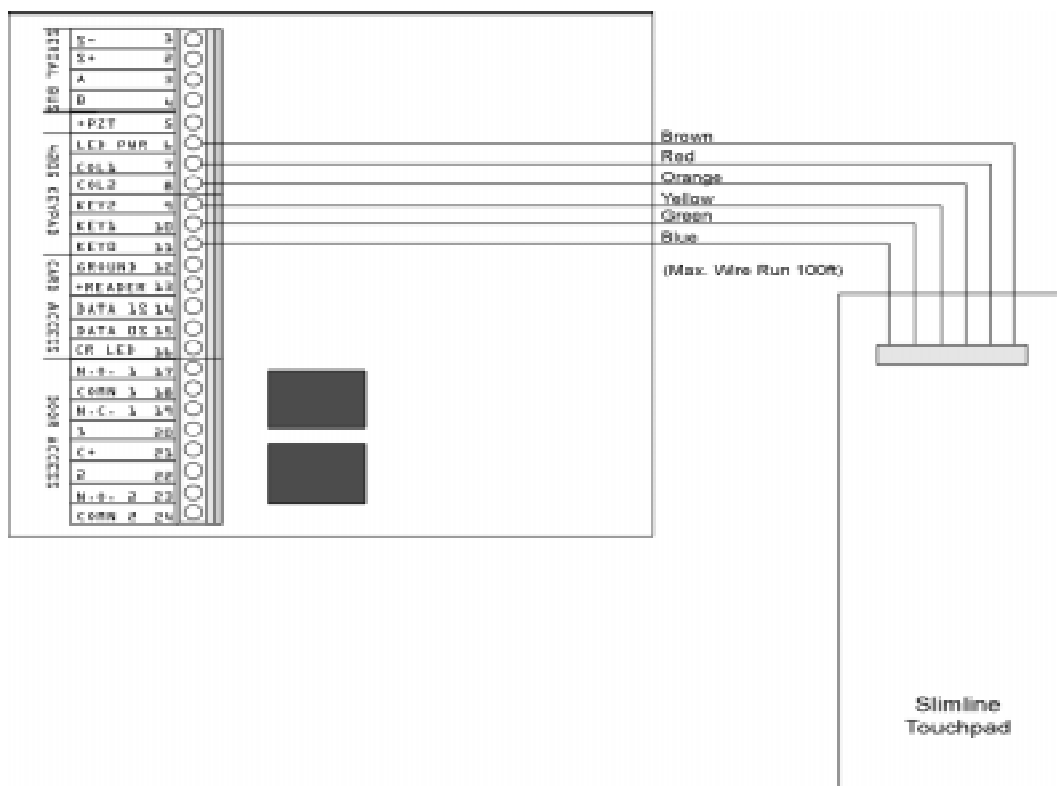


Figure 3-3 Model 4421 to 4205 Connection

Note: The Model 4205 is not UL listed for access control.

3.2 Card/Proximity Reader Installation

The Model 4421 Access Control Interface is compatible with 26-bit (plus a leading and trailing parity bits), 24-bit (plus a start-bit and a trailing parity bit), 32-bit, 34-bit (32 data plus a start-bit and a trailing parity bit), and 34-bit (32 data plus a leading and trailing parity bit) Wiegand-format readers. (See Figure Figure 3-4.) The following sections describe how to install the 4300 series readers. Refer to device manual for other manufacturers' products.

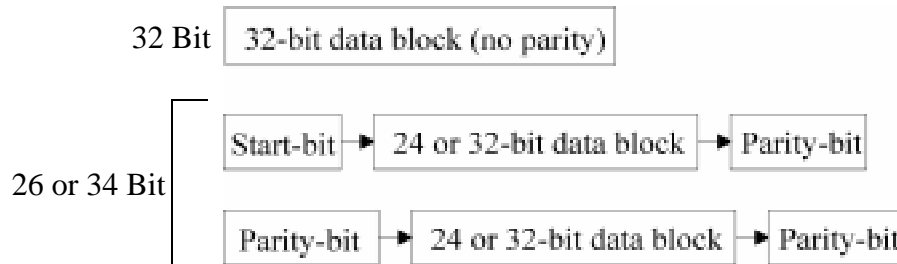


Figure 3-4 Block Diagram of Wiegand Formats

3.2.1 Card Reader Specifications

The 4300 Swipe Card Reader, and the 4330, 4340, and 4350 Proximity Readers require **shielded cable**. The chart below shows the specifications.

Model	Supply Voltage	Max. Supply Current	Output Sink	Output Source Current	Output Pulse Width	Operating Temp.	Max. Reader to Receiver Distance	
							Gauge	Distance
4300	5 VDC (+ or -5%)	25 mA	48 mA	5 mA	20 μ s typ.	-40° to 130° F	24 AWG 18 AWG	85 m (270') 137 m (450')
4330	12 VDC (+ or -5%)	80 mA	48 mA	5 mA	20 μ s typ.	-22° to 149° F	24 AWG 18 AWG	85 m (270') 137 m (450')
4340	12 VDC (+ or -5%)	80 mA	48 mA	5 mA	20 μ s typ.	-22° to 149° F	24 AWG 18 AWG	85 m (270') 137 m (450')
4350	12 VDC (+ or -5%)	150 mA	48 mA	5 mA	20 μ s typ.	-22° to 149° F	24 AWG 18 AWG	85 m (270') 137 m (450')

3.2.2 Mounting

Mount the 4300 series readers on any flat vertical surface.

Use two #10 bolts to mount the reader. Once the reader is mounted, cover the reader front by applying the pressure-sensitive dress panel or label.

When mounting the proximity readers, use flat-head screws. Drill a one-quarter inch (0.6 cm) or larger hole for the cable. Refer to the mounting template included with the reader for location of screw holes.

If the card readers will be in a location where they will be exposed to snow, mount in a vertical position to prevent accumulated snow from clogging the card slot.

3.2.3 Wiring the 4300 Swipe Card Reader

Wire the swipe card reader to the 4421 Door Access Module as shown in Figure 3-5. The card reader LED is on when the door relay is activated. The LED is off when the relay is deactivated or when there is no power. (The 4421 LED has the same meaning.)

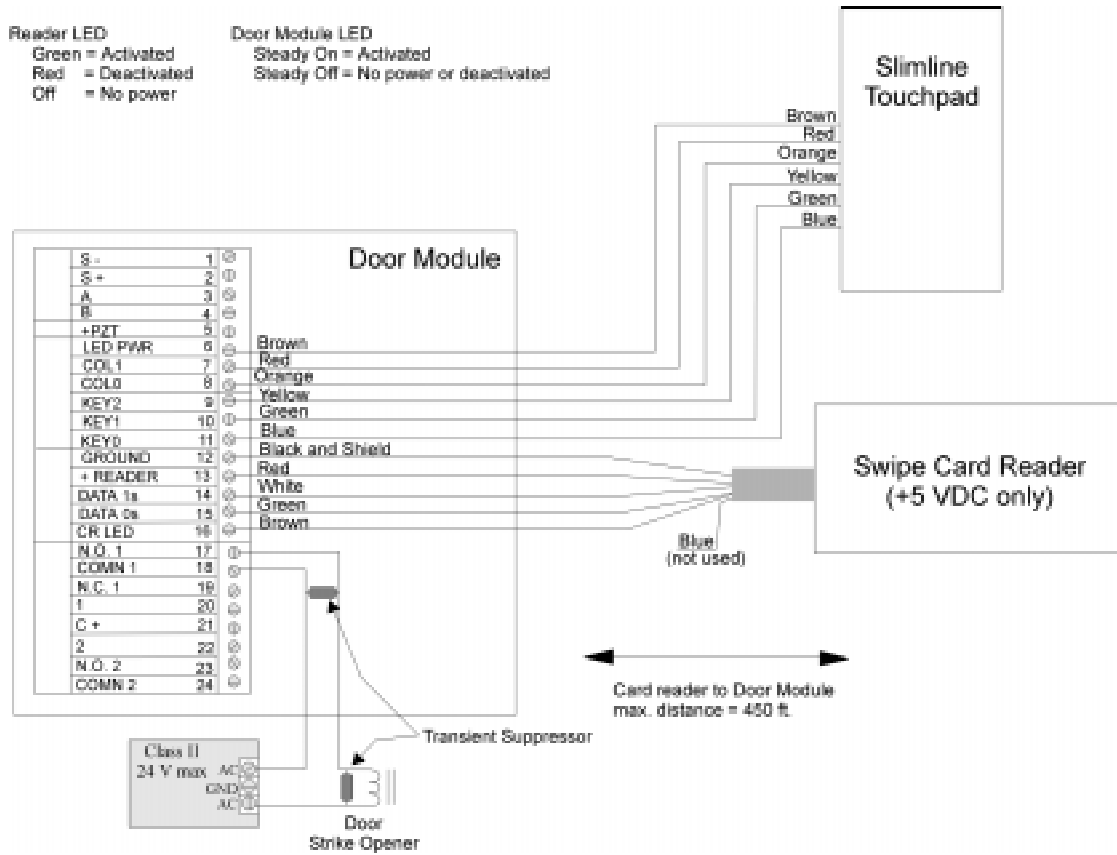


Figure 3-5 Model 4421 to 4300 Connection

3.2.4 Wiring the 4330, 4340 and 4350 Proximity Readers

Wire the Proximity Reader to the 4421 Door Access Module as shown in Figure 3-6. The card reader LED is on when the door relay is activated. The LED is off when the relay is deactivated or there is no power. (The 4421 LED has the same meaning.)

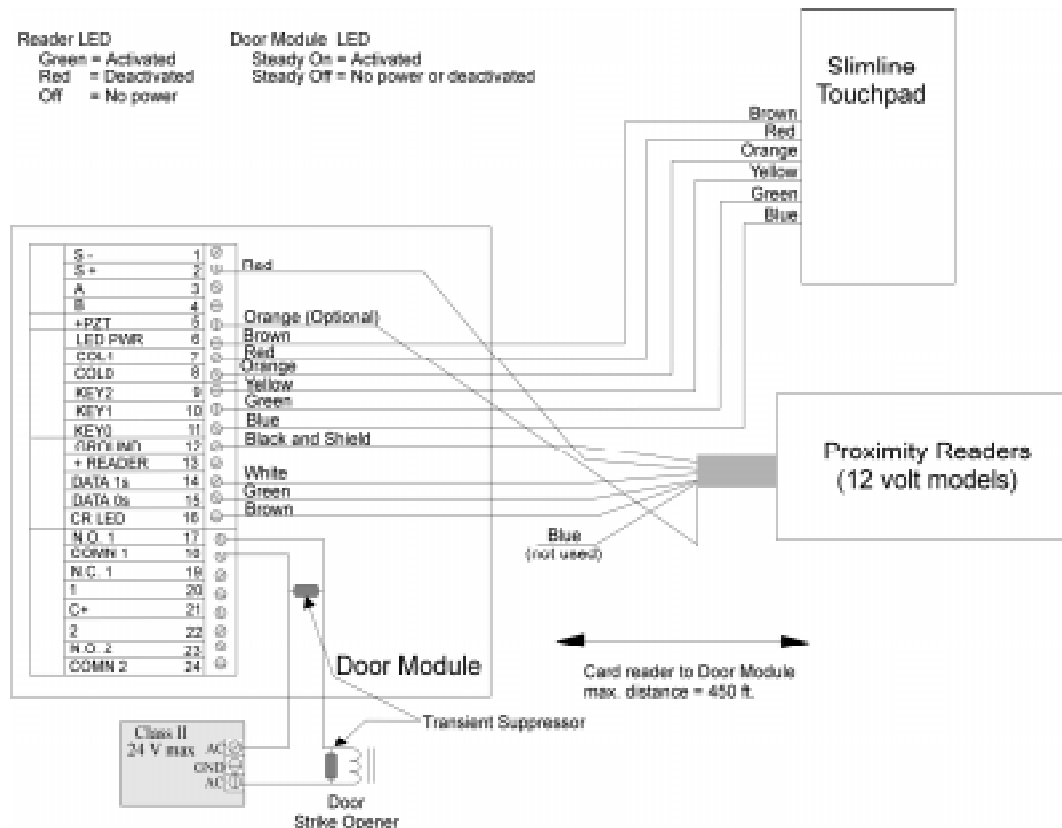


Figure 3-6 Model 4330, 4340 and 4350 Connection

3.3 Wiring the 4860C Touchpad for Door Access

The 4860C commercial touchpad can be used as a door access station. The zone inputs on the back of the touchpad can be wired to a door contact or could be used for any other purpose.

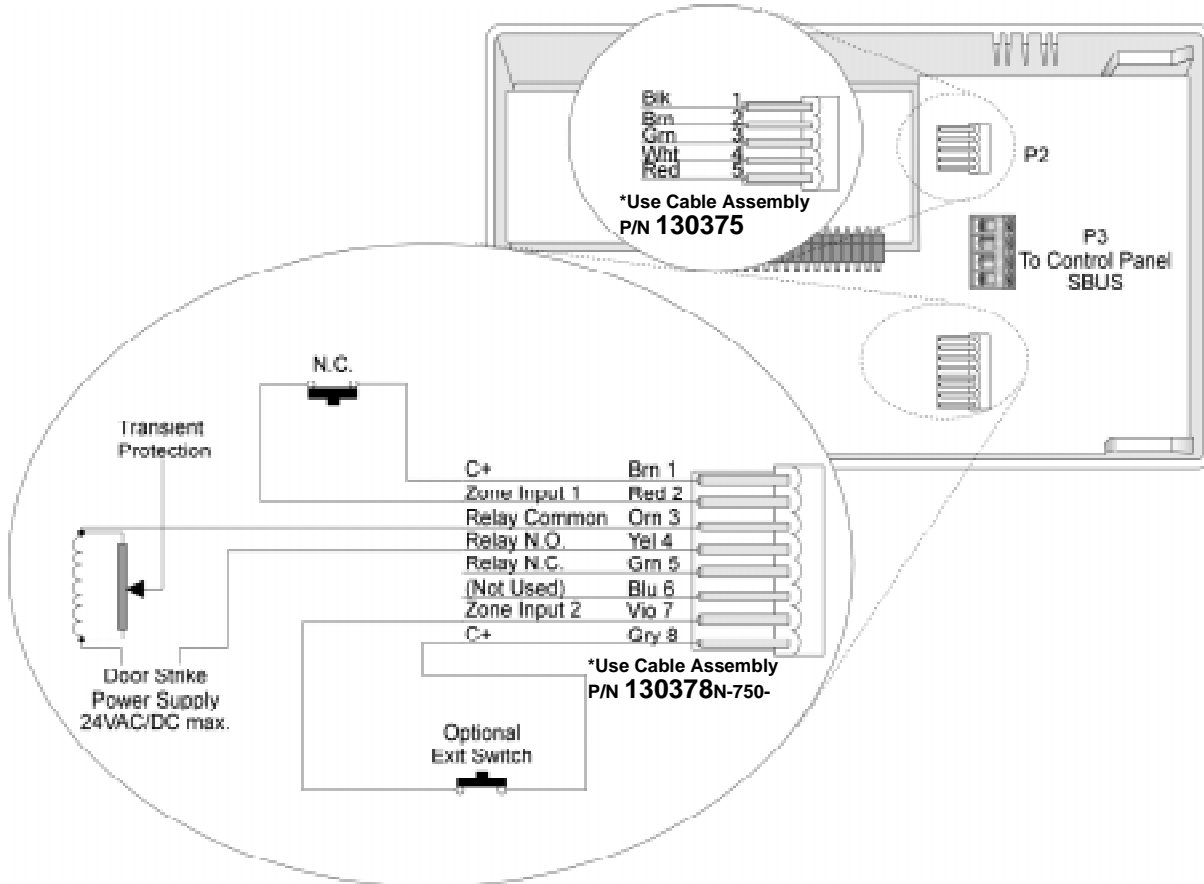


Figure 3-7 Wiring the 4860C Touchpad for Door Access

Connecting wires are included with the card readers.

Table 3-2: Connector Descriptions

P2 (Card Reader)			P4 (Door Access)		
Pin Number	Description	(P/N 130375) Wire Color	Pin Number	Description	(P/N 130378) Wire Color
1	Circuit Ground	Black	1	C+ is +12V	Brown
2	LED	Brown	2	Zone Input 1	Red
3	Data 0's	Green	3	Relay Contact (Common)	Orange
4	Data 1's	White	4	Relay Contact (Normally Open)	Yellow
5	+5 VDC	Red	5	Relay Contact (Normally Closed)	Green
			6	Not used	Blue
			7	Zone Input 2	Violet
			8	C+ is +12V	Gray

3.4 Access Control Operation

This section of the manual describes operation of access control features. An overview of these operations is included in the Operations Summary in Section 5 of this manual.

3.4.1 Access Control Touchpad Menus

The **DOOR** **BYPS** and **DOOR** **ENTR** menus are for maintenance level access control operations. The **DOOR** **BYPS** menu is for controlling door lock/unlock schedules from the touchpad (see Section 3.4.3 for more information). The **DOOR** **ENTR** menu is for controlling users' anti-passback status (see Section 3.4.6). A brief summary of end-user operations are in section 3.4.2.

3.4.2 End-User Operation

Normal end-user door access operation (accessing a door, opening an outside door from within, and so on) are described in the Census 4821 Owner’s Manual (P/N 150952). They are summarized below:

Opening an access controlled door	<p>Present your card to the card reader. You will hear a click and the red LED will turn green indicating that the door can be opened.</p> <p>—OR—</p> <p>Press <input type="button" value="DOOR"/> plus your PIN.</p>
Opening an access controlled door for another person (granting access)	<p>This operation would apply at a door station where a receptionist, security guard, or other person “buzzes in” another person after identification.</p> <p>Enter the device ID number of the door, then press <input type="button" value="DOOR"/> and your PIN. You may hear a click or buzzing sound indicating that the door can be opened.</p>
Opening a high security door	<p>High security doors are used to secure areas within an installation that not all employees are allowed to access. Both a card <i>and</i> a PIN are required to gain access.</p> <p>Present your card. The touchpad will display ENTER CODE. Enter your PIN.</p>

3.4.3 Manually Changing Door Schedules

The **DOOR** **BYPS** menu is for changing door access schedules from the touchpad. You can use this feature to temporarily override door schedules. Any operations made using the touchpad will be overridden the next time the schedule for the door takes effect.

- From the touchpad *assigned to the current door*, press, **DOOR** **BYPS** [Maintenance or Installer’s Code]. The status of the door will display for a few seconds then a menu with the options shown in the chart below will begin scrolling.
- From *any* touchpad, enter the device number of the door, **DOOR** **BYPS** [Maintenance or Installer’s Code]. For example, to access Door #4, press **4** **DOOR** **BYPS** [Maintenance or Installer’s Code].

The status of the door will display for a few seconds then a menu with the options shown in the chart below will begin scrolling.

0 - Unlock Door	Unlocks the door until the next scheduled lock time. Use this option to unlock a door that is currently scheduled to be locked. All users will be able to access the door.
9 - Lock Door	Locks the door until the next scheduled unlock time. Use this option to lock a door that is currently scheduled to be unlocked. No users will be able to access the door without a card or a code.
1 - To Sched	Restores the selected door to its scheduled setting.
2 - All Sched	Restore all doors to their scheduled settings.
3 - All Locked	Lock all doors. Overrides all door schedules.
4 - Select Door	Select another door to lock or unlock.
5 - Access Door	Open a door to allow individual access (not the same as unlocking).
STAT - STATUS	View the status of the door.

3.4.4 Viewing Door Status

Press **DOOR** **STAT** to view the door status. A list of doors and their locked/unlocked status displays.

3.4.5 Anti-Passback Feature

The anti-passback feature prevents users from giving access to others by “passing back” their access cards. In a typical anti-passback installation, users must “register” themselves by accessing a door programmed as Entry when they enter the building. They will only be allowed to leave from a door programmed as Exit. A user cannot access an Entry door twice consecutively. The **DOOR** **ENTR** menu allows users to be “forgiven” (allowed access even if they have not exited properly) and provides other anti-passback options. See Section 3.4.6.

Figure 3-8 below shows an example of anti-passback application. In this example, employees enter through an anti-passback doors (must enter and exit through separate doors). The manager’s entrance is not an anti-passback door, allowing employees to come and go freely.

Note: The anti-passback feature must be enabled through programming. See Section 6.

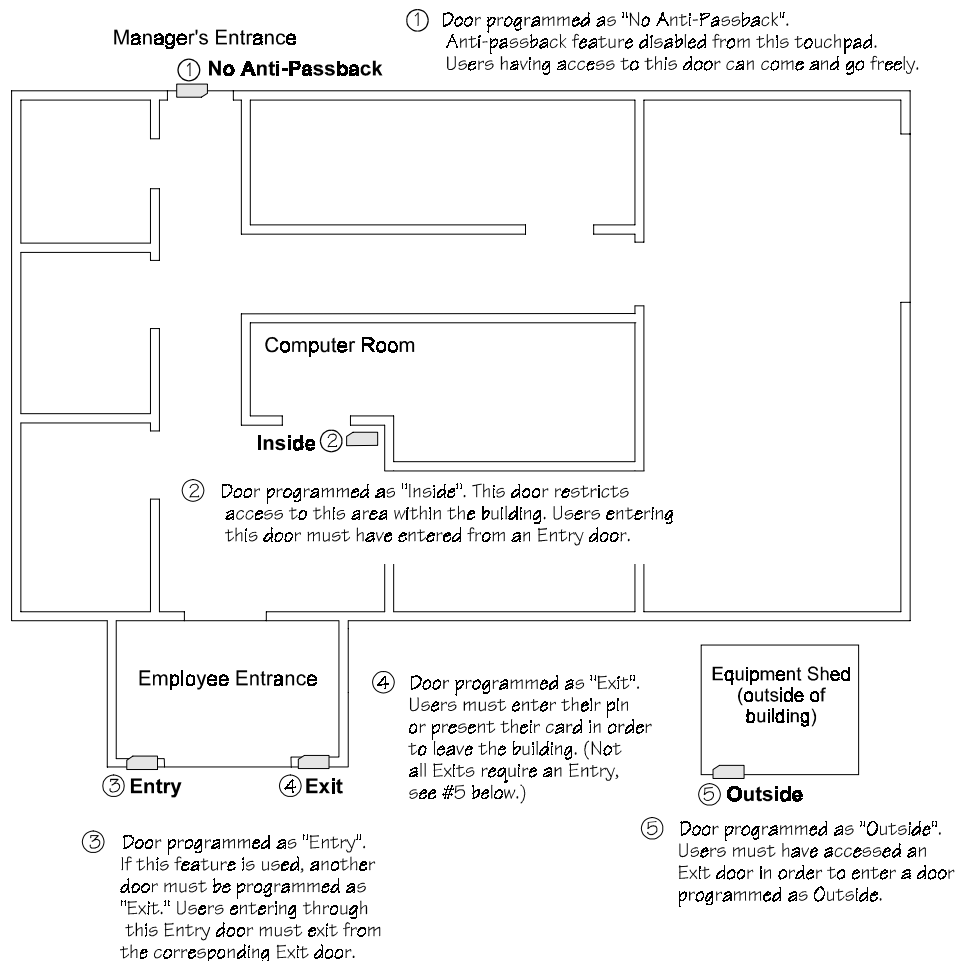


Figure 3-8 Sample Anti-Passback Application

3.4.6 Anti-Passback Operations

The **DOOR** **ENTR** menu is for controlling the anti-passback feature. It allows you to change users' anti-passback status so that they can access or be prevented from accessing the system.

When you press **DOOR** **ENTR** [Maintenance or Installer's Code], the following menu options display.

1 - User Status	Use to check the user's current status (for example, In or Out).
2 - Forgive	Forgive means allow the user to enter or exit a door even though the system has detected a problem with the users' anti-passback status.
3 - Lockout User	Change the user's status so he or she will be unable to enter the building.
4 - Num User In	Use this option to see how many users have "In" status.
5 - Forgive All	Reset anti-passback status and allow all users to enter the next time they attempt.
MUTE - Exit	Press to exit the menu.

3.4.7 Bulk Loading Access Cards

Bulk loading of access card allows you to enter multiple successive access cards in one procedure. Follow these steps to bulk load access cards:

1. This can be done by pressing **7** **ENTR**.

The display on the touchpad will read:

```

Enter Selection:          Enter Selection:
1---Change users   (then)  2---Bulk load
    
```

2. Press **2** then enter the user ID you wish to start with followed by **ENTR**.

The display on the touchpad will read:

```
Profile: 1
```

3. When prompted, enter a profile number followed by the **ENTR** key.

The display on the touchpad will read:

```
Card for Id XXXX
```

Note: XXXX equals the number entered in step 2.

4. Present a valid access card to the card reader.

The access card will be added to the system immediately followed by a success beep. The user ID will increase by one.

Note: If the card is already in the system, a failure beep sounds and you are taken back to step 2.

5. Repeat step 4 until all access cards are presented.

3.5 Egress Fail-safe Override Application

An egress fail-safe override is an optional configuration that can be used to give the installation an additional means of exit through access controlled doors in the case of power loss or a system failure.

Use the following diagrams to configure your system for egress fail-safe override.

Note: In each of the diagrams the egress device can be a motion detector, a crash bar, a button, a beam, etc.

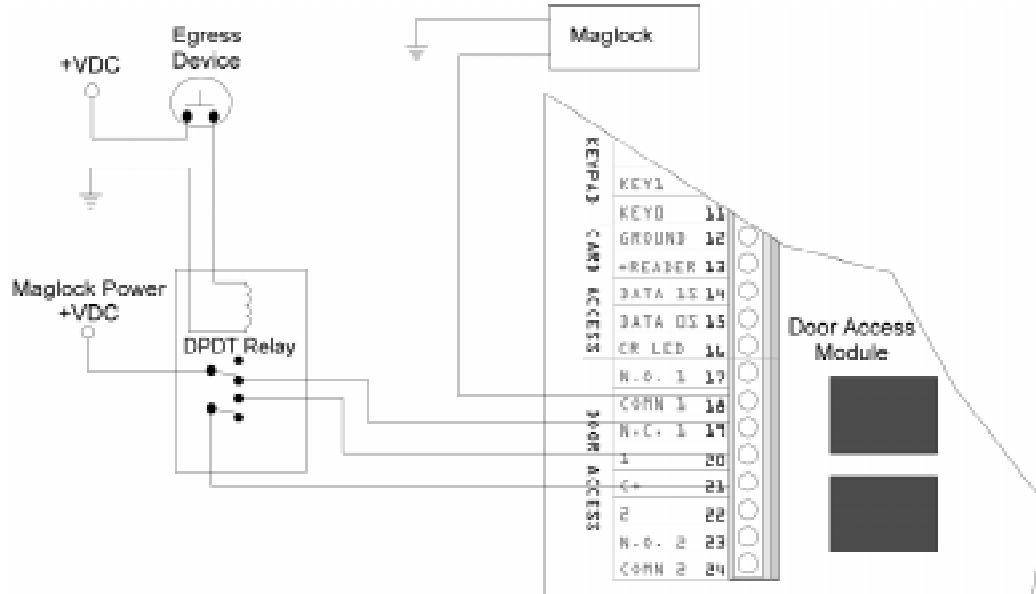


Figure 3-9 Fail-safe Override N.C. Configuration to a Door Access Module

Note: Input 1 must be programmed for "Not ready" on short.

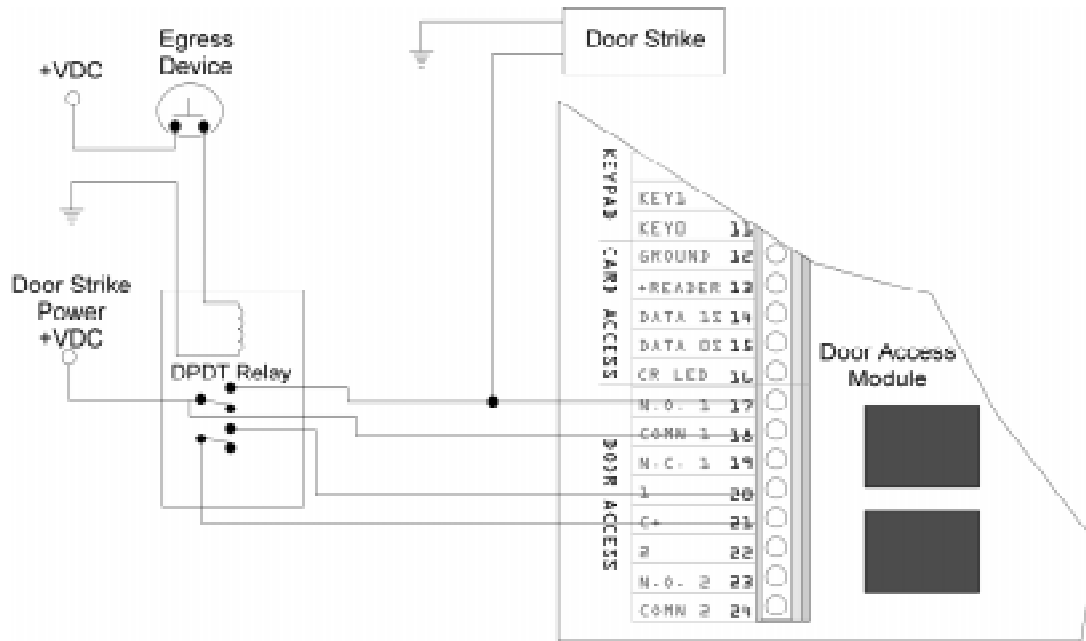


Figure 3-10 Fail-safe Override N.O. Configuration to a Door Access Module

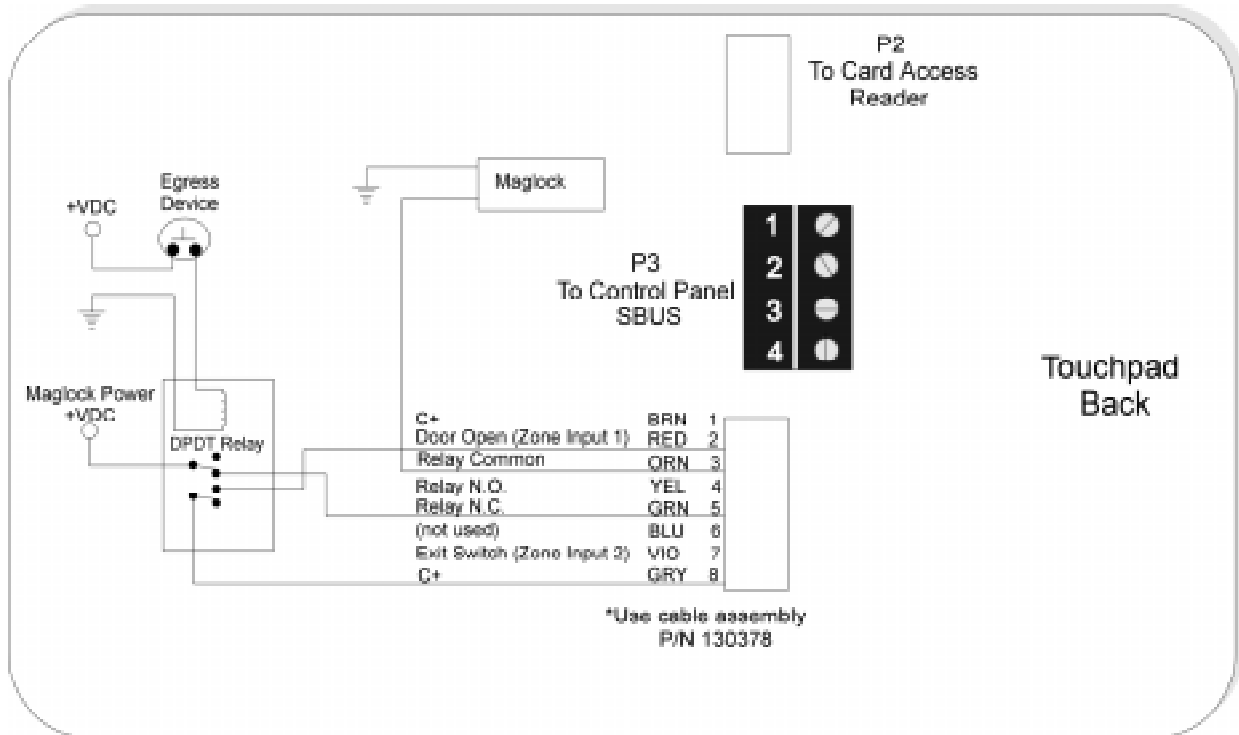


Figure 3-11 Fail-safe Override N.C. Configuration to a Touchpad

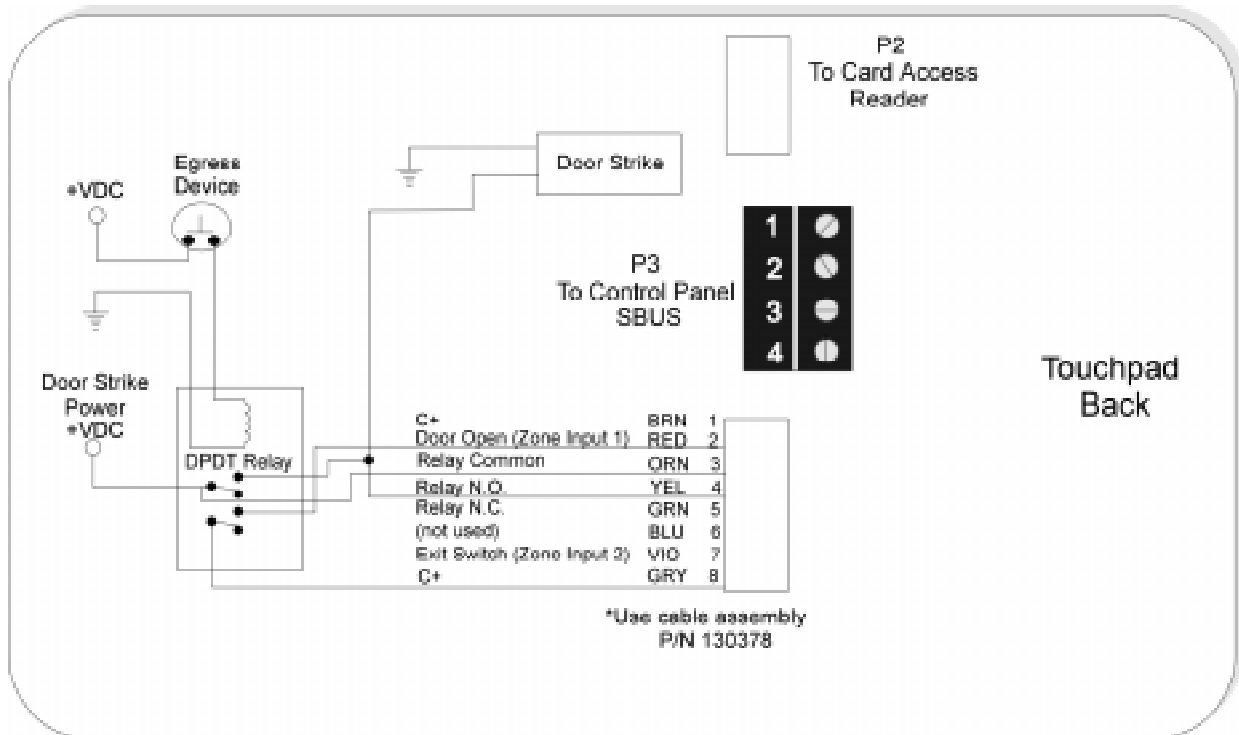


Figure 3-12 Fail-safe Override N.O. Configuration to a Touchpad

Section 4

Control Panel Description and Installation

Warning:

To avoid the risk of electrical shock, do not apply power to the Model 4821/4820 until you have read these instructions carefully.

This section describes how to install the control panel and some accessories, including compatible add-on modules, such as smoke detectors and signaling devices. In all cases, refer to the compatible module's installation manual for complete information. (Some Silent Knight compatible modules have separate installation manuals. See Section 1.1.1 for location of installation instructions for Silent Knight products.)

4.1 Environmental Specifications

- Temperature range is 32° to 120° F (0° to 49° C).
- Indoor use only.
- 85 percent non-condensing humidity.
- Non-corrosive environment.

4.2 Electrical Specifications

Line voltage:	110-120 VAC, 60 Hz
Transformer output: (Model 9227)	18 VAC, 50 VA
Current requirements:	3.0A
Total alarm current:	2.25A

IMPORTANT!

All circuits are power limited, Class II, except for the battery leads.

4.3 Board Layout

Figure 4-1 shows the Model 4821/4820 printed circuit board.

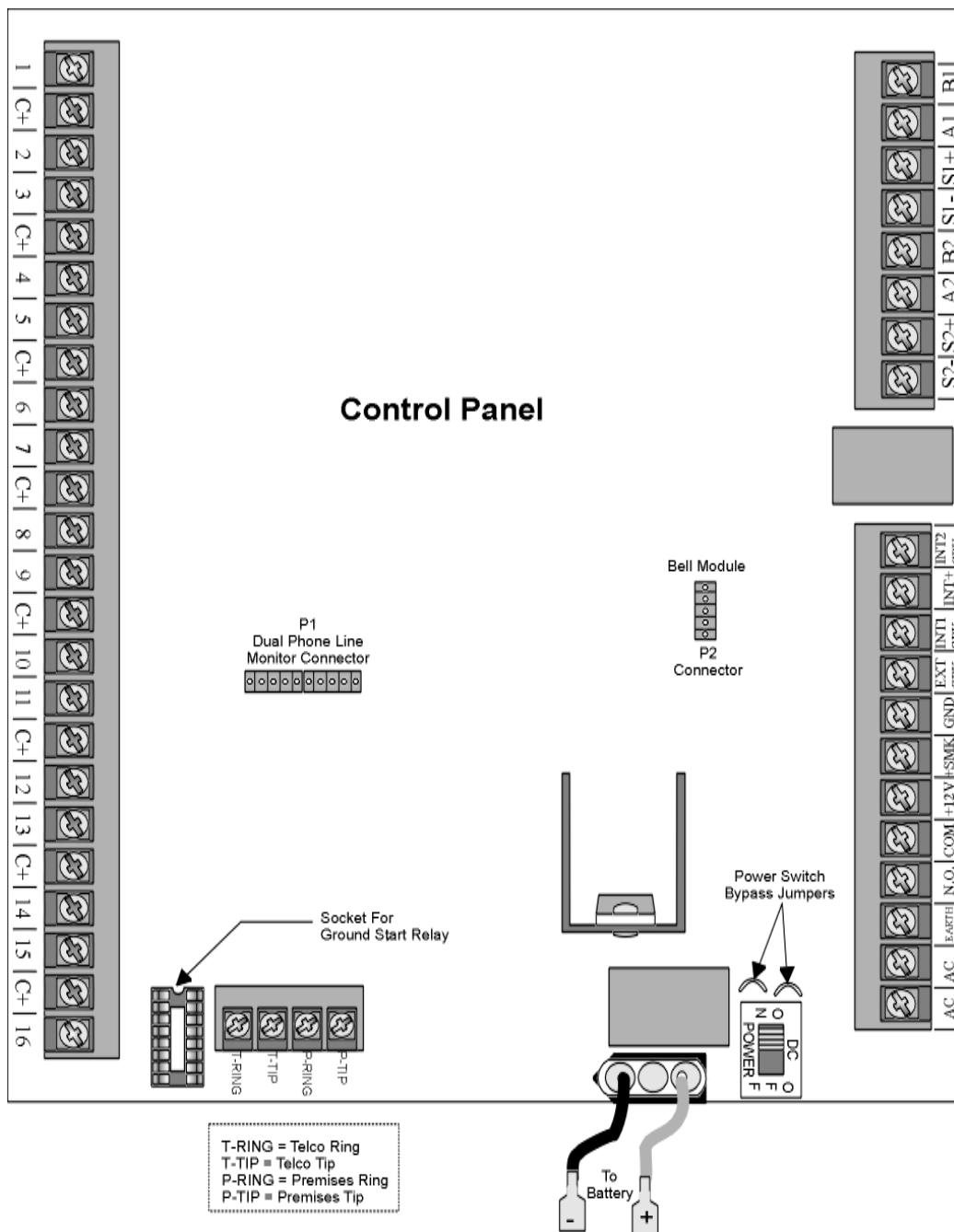


Figure 4-1 Model 4821/4820 Printed Circuit Board

4.4 Terminal Strip Description

Table 4-1: Control Panel Terminal Descriptions

Name	Terminal Description	Electrical Ratings
AC	AC Input	18 VAC, 60 Hz, 50VA
AC	AC Input	18 VAC, 60 Hz, 50VA
EARTH	Earth Ground	0 VDC
N.O.	Relay Contact (Normally Open)	2.5 Amps max. @ 24VDC
COM	Relay Contact (Common)	Must be connected to power limited sources only
+12V	Accessory Power (+)	12 VDC, 1 Amp max.
+SMK	Smoke Detector Power (+)	12 VDC, 1 Amp max.
GND	Circuit Ground	0 VDC
EXT SPK	External Speaker (+)	8 ohm, 15 watt min. rating speaker output
INT1 SPK-	Internal Speaker #1 (-)	
INT+	Internal Speaker (+)	(1) 8 ohm, 5 watt, or (3) 45 ohm, 1 watt
INT2 SPK-	Internal Speaker #2 (-)	
S2-	SBUS #2 (-)	0 VDC
S2+	SBUS #2 (+)	12 VDC, 1 Amp max.
A2	SBUS #2 (data)	5 VDC
B2	SBUS #2 (data)	5 VDC
S1-	SBUS #1 (-)	0 VDC
S1+	SBUS #1 (+)	12 VDC, 1 Amp max.
A1	SBUS #1 (data)	5 VDC
B1	SBUS #1 (data)	5 VDC
1	Zone 1 Input	12 VDC, 50mA max. .079 VDC Nominal (Note that this zone is rated differently from other inputs.)
C+	Zones 1 and 2 Power Output	All zone power outputs: 12 VDC Use ESL Model 449CT 4-wire smoke detector.

Table 4-1: Control Panel Terminal Descriptions

Name	Terminal Description	Electrical Ratings
2	Zone 2 Input	For zone 2-16 inputs: 12 VDC max. at 1.4 mA
3	Zone 3 Input	
C+	Zones 3 and 4 Power Output	
4	Zone 4 Input	
5	Zone 5 Input	
C+	Zones 5 and 6 Power Output	
6	Zone 6 Input	
7	Zone 7 Input	
C+	Zones 7 and 8 Power Output	
8	Zone 8 Input	
9	Zone 9 Input	
C+	Zones 9 and 10 Power Output	
10	Zone 10 Input	
11	Zone 11 Input	
C+	Zones 11 and 12 Power Output	
12	Zone 12 Input	
13	Zone 13 Input	
C+	Zones 13 and 14 Power Output	
14	Zone 14 Input	
15	Zone 15 Input	
C+	Zones 15 and 16 Power Output	
16	Zone 16 Input	
T-RING	Telco Ring	
T-TIP	Telco Tip	
P-RING	Premises Ring	
P-TIP	Premises Tip	

4.5 Power Limiting Circuits

The Model 4821/4820 is power-limited for over-current protection. When you remove the short, circuits self-restore.

4.6 Power Switch

The power switch is disabled by the power switch bypass jumpers, to enable the power switch cut both jumpers. Make sure the power switch is off when you are installing the system. See Figure 4-1 for location of the power switch and power switch bypass jumpers.

*Note: The power switch bypass jumpers **can not** be cut for UL 864 and NFPA (Chapter 4) fire installations. (See Section 1.4.3.5.)*

4.7 Mounting the Model 4821/4820 Panel

When selecting a location to mount the Model 4821/4820, consider the following:

- Panel must be accessible to main drop wiring runs.
- Panel must be located well within the secured area, but must be accessible for testing and service.
- See environmental specifications described in Section 4.1.

If you are installing a UL Grade A Mercantile installation, all unused knockout holes must be plugged using bolts and washers. (Model 7600 is a kit available from Silent Knight for this purpose. 6 sets per package.) Use the following steps to plug the knockout holes:

1. Remove all unused knockouts.
2. Install the carriage bolt and washers as shown in the diagram below. The smallest washer should be placed *inside* the hole in the cabinet.
3. Firmly tighten the wing nut.

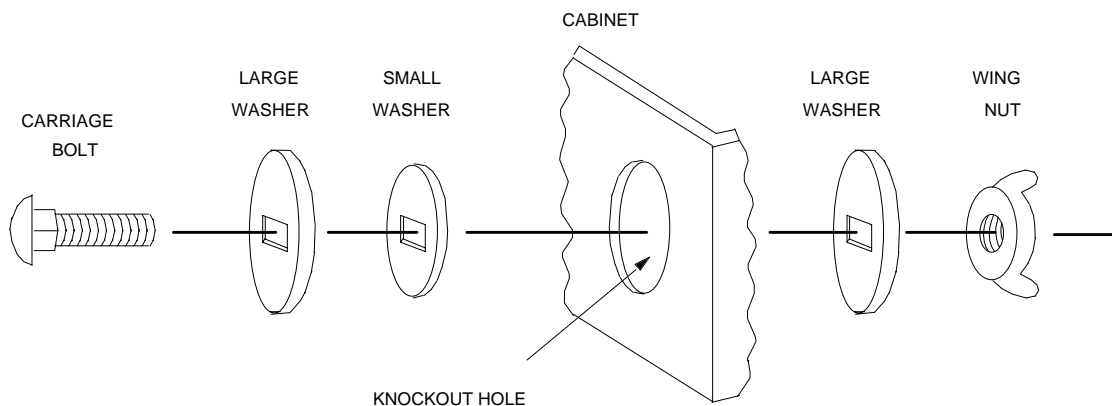


Figure 4-2 Knockout Plug Installation

4.8 Wire Routing

Figure 4-3 is an example of how Model 4821/4820 wires should be routed through the cabinet in order to maintain one-quarter inch spacing between power limited and non-power limited circuits.

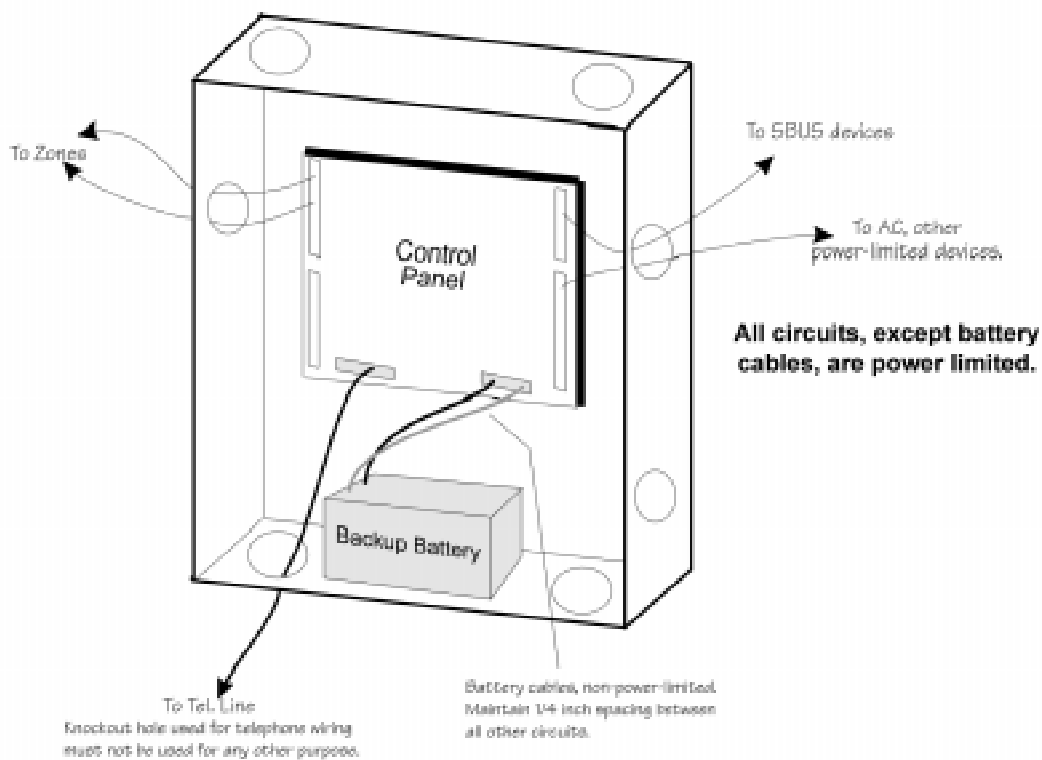


Figure 4-3 Sample Wire Routing

4.9 Current Draw Worksheets

The current draw worksheets in this section are provided to help you calculate the number and size of devices that will be used in an installation. Copy these sheets as needed.

Figure 4-4 and Figure 4-5 are sample worksheets. (They have already been filled out to serve as examples.) Blank worksheets for your installations are in Sections 4.9.2 and 4.9.3.

4.9.1 Sample Worksheets

Enter the number of devices being used. The max. Number that can be used is in parentheses.

Fill in current ratings as needed.

Circle out on the row for any unused device.

Device	Number of Devices	Current per Device	Total Standby Current	Total Alarm Current
4821 Control Communicator	1 (1 max.)	Standby: 100 mA Alarm: 120 mA	100 mA	120 mA
3211 Control Panel Relay	1 (1 max.)	Standby: 0 mA Alarm: 18 mA		18 mA
4860 Series Keypad	6 (24 max.)	Standby: 48 mA Alarm: 90 mA	288 mA	540 mA
4860 Series Output Module	1 (2 max.)	Standby: 20 mA Alarm: 110 mA	20 mA	110 mA
4824 Serial Panel Module	1 (1 max.)	Standby: 40 mA Alarm: 80 mA	40 mA	80 mA
4860 Series Expander	1 (5 max.)	Standby: 80 mA Alarm: 80 mA	80 mA	80 mA
4823 Zone Expander	1 (6 max.)	Standby: 80 mA Alarm: 80 mA	80 mA	80 mA
4860 Dual Zone Line Module	1 (1 max.)	Standby: 0 mA Reporting: 14 mA	0 mA	14 mA
Row A	Subtotal of current rating for Silent Knight devices		468 mA Standby	540 mA Alarm

Multiply number of devices by the current per device. Add each column and record totals in "Row A".

Figure 4-4 Sample Silent Knight Module Current Worksheet

Device	Number of Devices	Current per Device	Total Standby Current	Total Alarm Current
Smoke Detectors		Refer to device manual for current ratings.		
Model XYZ	2	Alarm: 16 mA Standby: 16 mA Alarm: 16 mA	1 mA	32 mA
Signaling Devices		Refer to device manual for current ratings.		
Model ABC		Alarm: 120 mA Alarm: 120 mA Alarm: 120 mA		120 mA
Other Devices		Refer to device manual for current ratings.		
		Alarm: 1 mA Standby: 1 mA Alarm: 1 mA		1 mA
Row B	Subtotal current ratings of all devices in Table 4-3		1 mA Standby	152 mA Alarm
Row A	Subtotal current ratings of all devices in Table 4-2		468 mA Standby	540 mA Alarm
Row C	Total current ratings of all devices in system (Row A + Row B)		469.1 mA Standby	541 mA Alarm

Multiply number of devices by the current per device. Add each column and record totals in "Row B"
 From Table 4-2
 Row C = Row A + Row B

Figure 4-5 Sample Compatible Module Current Worksheet

4.9.2 Worksheet for Silent Knight Modules

Table 4-2: Current Draw Worksheet for Optional Modules

Device	Number of Devices	Current per Device		Total Standby Current	Total Alarm Current
		Standby:	Alarm:		
Model 4821/4820 Control/Communicator	1	Standby:	100 mA	100 mA	
	(1 max.)	Alarm:	120 mA		120 mA
4421 Door Access Module		Standby:	25 mA	mA	
	(24 max.)	Alarm:	40 mA		mA
4860 Series Touchpad		Standby:	48 mA	mA	
	(24 max.)	Alarm:	90 mA		mA
4205 Touchpad (used with the 4421)		Standby:	10 mA	mA	
	(24 max.)	Alarm:	10 mA		mA
4880 Status Output Module		Standby:	20 mA	mA	
	(3 max.)	Alarm:	140 mA		mA
4824 Serial/Parallel Interface		Standby:	40 mA	mA	
	(8 max.)	Alarm:	40 mA		mA
4815 Zone Expander		Standby:	80 mA	mA	
	(3 max.)	Alarm:	80 mA		mA
4825 Zone Expander		Standby:	80 mA	mA	
	(6 max.)	Alarm:	80 mA		mA
4875 Dual Phone Line Monitor	1	Standby:	0 mA	mA	
	(1 max.)	Alarm:	18 mA		mA
4884 Bell Module	1	Standby:	5 mA	mA	
	(1 max.)	Alarm:	60 mA		mA
4300 Swipe Card Reader		Standby:	25 mA	mA	
	(24 max.)	Alarm:	25 mA		mA
4330 Proximity Reader		Standby:	45 mA	mA	
	(24 max.)	Active:	80 mA		mA
4340 Proximity Reader		Standby:	45 mA	mA	
	(24 max.)	Active:	80 mA		mA
4350 Proximity Reader		Standby:	100 mA	mA	
	(24 max.)	Active:	150 mA		mA
5211 Ground Start Relay	1	Standby:	0 mA	mA	
	(1 max.)	Alarm:	18 mA		mA
Subtotal of current ratings for Silent Knight devices				mA Standby	mA Alarm

Note: Total of all 4421s and 4860s combined.

Note: The 4884 shares its power with the auxiliary output. The auxiliary output is rated at 1A total current for all devices.

4.9.3 Worksheet for Auxiliary Devices (not Silent Knight)

Use Table 4-3 for recording current draw for other devices compatible with the 4821/4820 that are not manufactured by Silent Knight (for example, signaling devices and smoke detectors). Copy this page if you need additional lines to list devices.

Table 4-3: Current Draw Worksheet for Other Devices

Device	Number of Devices	Current per Device		Total Standby Current	Total Alarm Current
Smoke Detectors	Refer to device manual for current ratings.				
		Standby:	mA	mA	
		Alarm:	mA		mA
		Standby:	mA	mA	
		Alarm:	mA		mA
		Standby:	mA	mA	
		Alarm:	mA		mA
		Standby:	mA	mA	
		Alarm:	mA		mA
Signaling Devices	Refer to device manual for alarm current ratings. Standby current is always 0 mA.				
		Alarm:	mA		mA
		Alarm:	mA		mA
		Alarm:	mA		mA
		Alarm:	mA		mA
Other Devices	Refer to device manual for current ratings.				
		Standby:	mA	mA	
		Alarm:	mA		mA
		Standby:	mA	mA	
		Alarm:	mA		mA
		Standby:	mA	mA	
		Alarm:	mA		mA
Row B	Subtotal current ratings of all devices in Table 4-3.			mA Standby	mA Alarm
Row A	Subtotal current ratings of SK devices from Table 4-2.			mA Standby	mA Alarm
Row C	Total current ratings of all devices in system (Row A + Row B)			mA Standby	mA Alarm

4.9.4 Battery Calculation Worksheet

To ensure 24-hour standby, the total standby current must not exceed:

285 mA if a battery only is used.

450 mA if the Model 4195 Auxiliary Power Supply is used.

Total alarm current must not exceed 2.25 Amps.

Table 4-4: Battery Calculation Worksheet

	Device	Standby Current	Alarm Current
A	Total current used by 4821/4820 (from Table 4-3, Row C)	mA	mA
B	Total current ratings converted to amperes (Line A x .001)	A	A
C	Number of standby hours (for example, 24)	H	
D	Multiply lines B and C	AH	
E	Alarm sounding period in hours (For example, 5 minutes = .084 hours)		H
F	Multiply lines B and E		AH
G	Add lines D and F	AH	
H	Multiply line G by 1.2 (Total ampere hours required)	AH	

4.9.5 Standby Current For DACT Compliant Installations

In order to meet the 24-hour standby requirement the total standby current Must Not exceed 475mA for the system using both the 4821/4820 Control Panel and the 4195 Auxiliary Power Supply. The combination of these supplies provides 14 amp hours of standby power.

If your system configuration exceeds 475 mA of standby current you must provide additional power from an external power supply. Silent Knight has tested the following power supplies for compatibility with the 4821/4820 Control Panel:

- Alarm Saf Model PS5-BFS-12-UL
- Altronix Model AL400ULX

4.10 AC Power Transformer

The Model 9227 is an external transformer that is included with the 4821/4820. The transformer output is 18 VAC, 50VA and provides power and battery charging for the system. The transformer plugs directly into a conventional 120 VAC unswitched outlet.

The earth terminal on the 4821/4820 main circuit board provides a convenient method for connecting the 4821/4820 metal cabinet to an earth ground. (See Figure 4-6.)The earth connection is also used for increased transient protection on the telephone interface. All circuitry in the Model 4821/4820 system is electrically isolated from this earth terminal on the 4821/4820 main circuit board. There should be no connections to this terminal other than the earth connection for grounding the metal cabinet.

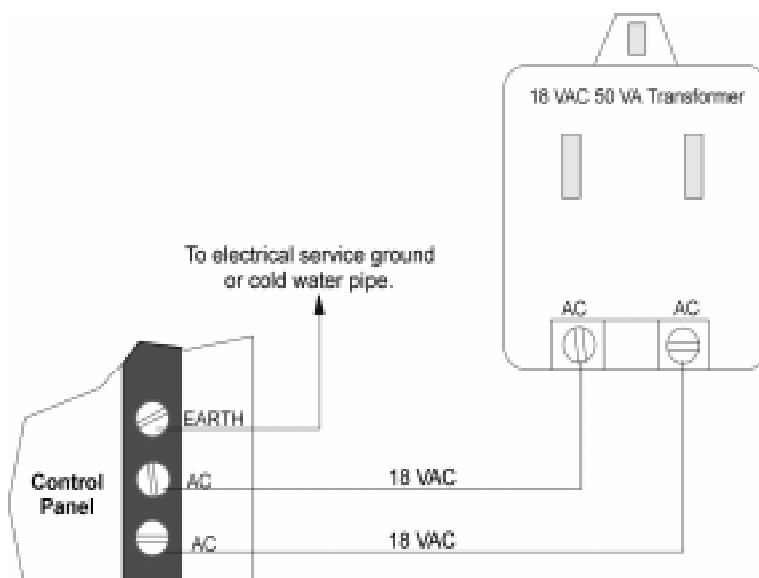


Figure 4-6 Model 9227 Connection to Model 4821/4820

4.11 Backup Battery Connection

The Model 6712 is a 12 VDC 7AH gell cell battery available from Silent Knight for use with the 4821/4820. (Note that the battery does *not* charge when system power is off.)

A low battery trouble condition exists if the battery voltage drops below 10.2 VDC.

The nominal charging voltage is 13.65 VDC (range is 13.5 to 14.0).

This manual contains a worksheet for determining battery size. See Section 4.9.4 for more information.

Note: If you are installing a battery in a system that has a tamper switch, an alarm may occur when you install the battery (because the door must be open when power is applied).

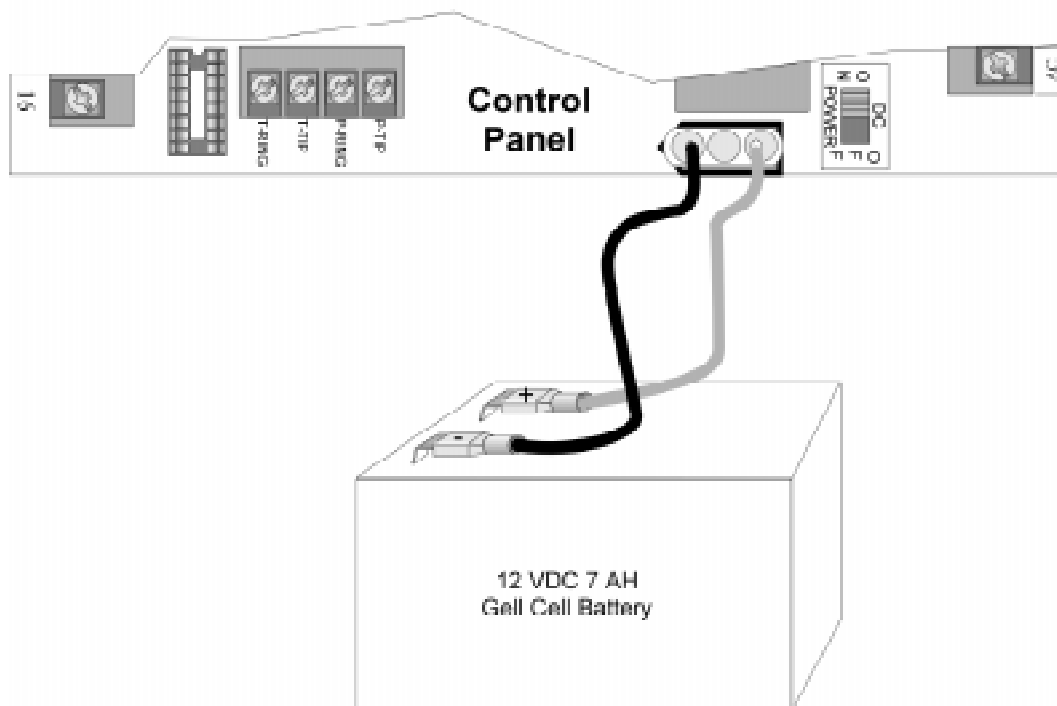


Figure 4-7 Model 6712 Battery Connection

4.12 4195 Auxiliary Power Supply Installation

Through its two 1.25A 12 VDC terminals, the 4195 provides an additional 2.5A of current for accessory items. The 4195 also allows you to use two standby batteries to double the time that the system can function on battery standby.

Figure 4-8 shows the location of LEDs for battery reversal and output overload. It also shows how to wire the 4195. If you are using the 4195 to power smoke detectors, connect the 4195 CONTROL terminal to the 4821/4820 +SMK terminal. For powering other types of devices, connect CONTROL to +12V.

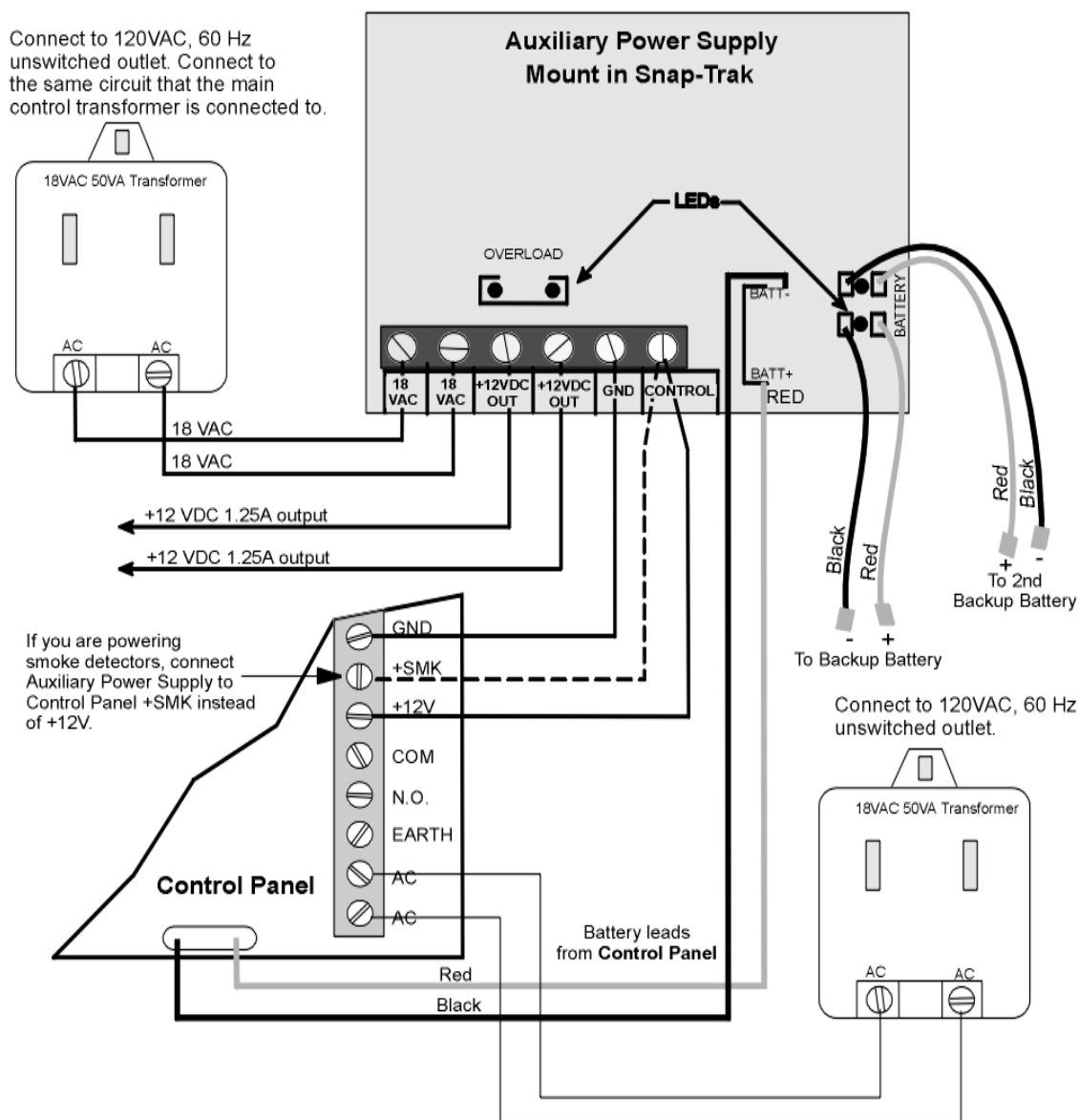


Figure 4-8 Model 4195 Auxiliary Power Supply Connection

4.13 SBUS

Most modules available for use with the 4821/4820 connect via a four-wire serial bus (SBUS). There are two SBUS connections that are referred to in this manual as “SBUS1” and “SBUS2”.

Each SBUS is a four-wire serial bus containing two power and two data conductors. The power conductors are identified as S- (system ground) and S+ (+10 to +14 volts). The data conductors are identified as A and B. Lines A and B are a differential RS485 pair.

All modules connected on the SBUS can be located as far as 4,000 feet from the control panel, if sufficiently large wire gauges are used for the power and ground connections. The voltage drop on the wire run must not be more than 2.0 volts. (See Section 4.13.3 for specifics.)

Figure 4-9 is a general picture of SBUS connection points. Wiring for each SBUS module is shown in the appropriate section of this manual or in the separate manual for the device.

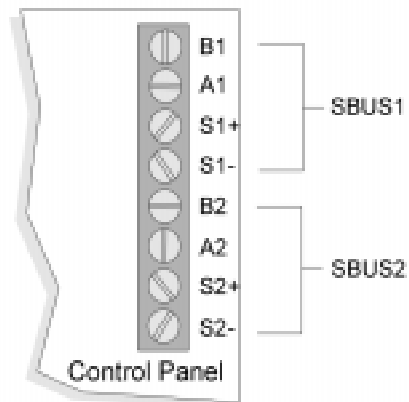


Figure 4-9 SBUS Connection Points

4.13.1 SBUS Modules

The following modules connect to the 4821/4820 via the SBUS:

- Touchpads (Models 4421, 4860C, 4860R, and 4860Rx)
- Note: 4421 cannot be used with the 4820 control panel*
- Zone Expanders (Models 4815 and 4825)
 - Status Output Module (Model 4880N-750-SDB)
 - Serial/Parallel Module (Model 4824)

Figure 4-10 shows an installation making use of all SBUS modules available with the Model 4821/4820 system. (For simplicity, the diagram shows all modules connected to a single SBUS, though in a real application you would typically divide modules as evenly as possible between SBUS1 and SBUS2.)

4.13.2 Distribution of Modules Between SBUS1 and SBUS2

SBUS modules can be distributed between the two serial buses in any combination.

Note: In a UL installation, each SBUS must have at least one touchpad.

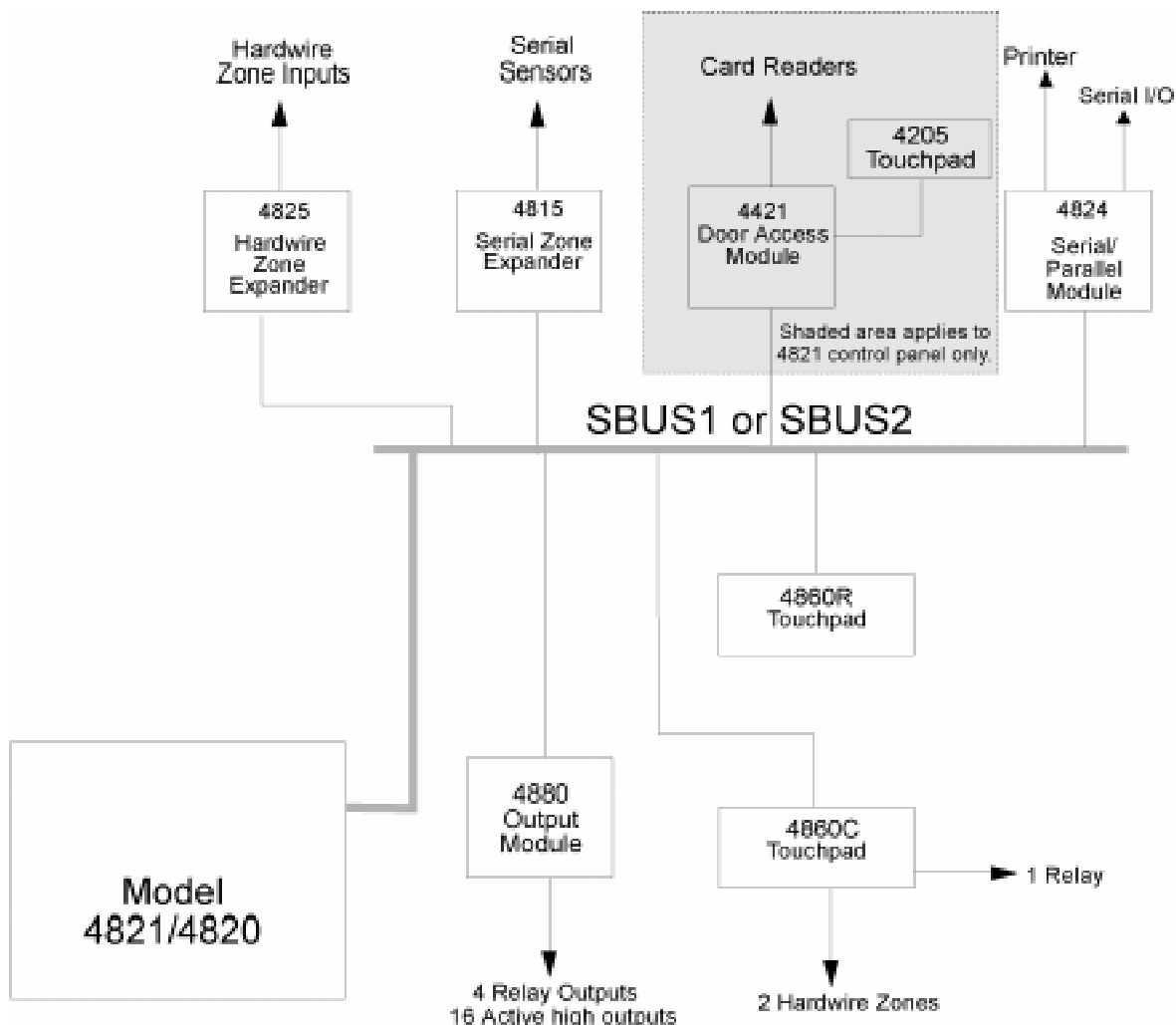


Figure 4-10 Sample SBUS Connections

4.13.3 Number of SBUS Devices

The table below shows the maximum number of devices and maximum distance from the 4821/4820 for SBUS devices, assuming a maximum of 2 volts of line drop and 100 mA of current per device. Following these guidelines guarantees that there will be sufficient voltage in the worst case (when the battery voltage is 10V or greater and when all devices are located at the end of the wiring). (The formula used to generate this table is shown in the note below.)

Table 4-5: Number of SBUS Devices

Model 4821/4820 to SBUS Devices Maximum wiring distance with 14 - 22 gauge wire (AWG)					
Num. of Devices per 4-Conductor Wire	22 Gauge	18 Gauge	16 Gauge	14 Gauge	
1	617 ft.	1562 ft.	2487 ft.	3937 ft.	<i>Max. distance for all home-run devices.</i>
2	308 ft.	781 ft.	1243 ft.	1968 ft.	<i>Max. distance for 2 T-tapped or daisy-chained devices.</i>
3	205 ft.	520 ft.	829 ft.	1312 ft.	<i>Max. distance for 3 T-tapped or daisy-chained devices.</i>
4	154 ft.	390 ft.	621 ft.	904 ft.	<i>Max. distance for 4 T-tapped or daisy-chained devices.</i>

Note: The following formula was used to calculate the maximum wire distances:

$$\text{Max. Distance} = \frac{500V}{NIRpu}$$

where:

- V = 2 volts (Maximum allowed voltage drop under low battery condition of 10.0 volts.)
- N = Number of devices
- I = .1 amps (Worst case current draw for all devices.)
- Rpu = Ohms per 1,000 feet for various wire gauges, see below.

<u>Wire gauge</u>	<u>Ohms per 1,000 feet</u>
22	16.2 Ω
18	6.4 Ω
16	4.02 Ω
14	2.54 Ω

4.14 Touchpad Installation

This section describes installation of a touchpad for basic system operation. For information about how to install 4860C touchpads as input zones, see Section 4.15.5.

4.14.1 Touchpad Specifications

- When installed for use as an access control system the touchpad must be located inside the protected premises.
- 24 touchpads/card readers maximum per system.
- All touchpads require four wires to operate.
- Maximum distance from the control panel depends on the number of devices attached to the SBUS. See Section 4.13.3 for complete information.
- Maximum current draw: 90 mA
- Standby current draw: 48 mA
- Maximum allowed voltage drop for a touchpad wire run: 2V
- For best system performance, connect most touchpads to the same SBUS, either SBUS1 or SBUS2. (Connect all other SBUS devices to the SBUS that is not used by touchpads.)

4.14.2 Mounting Touchpads

1. Separate the top section from the rear mounting plate. Do this by inserting a small flat-blade screwdriver into the slot located on the bottom edge of the frame. (See Figure 4-11.) Push in, then lift up the top section.

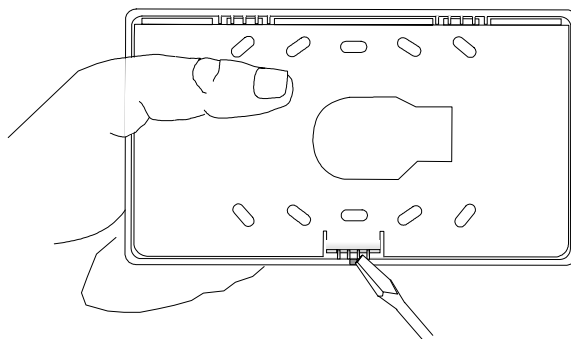


Figure 4-11 Mounting Plate Slot location.

2. Secure the mounting plate to the wall using the screw (#6 or #8) appropriate for the type of wall material.
3. The mounting plate should be oriented so that the protruding tab and the three posts are towards the bottom. Pull the wires through the hole in the rear mounting plate.

4. Wire the touchpad as described in Section 4.14.3.
5. After all the wires are connected to the touchpad terminal strip, set the top of the touchpad frame over the tabs at the top of the mounting plate, then press on the bottom until you hear it snap into position.

4.14.3 Wiring Touchpads

Figure 4-12 shows how to connect a Model 4860 touchpad to the 4821/4820.

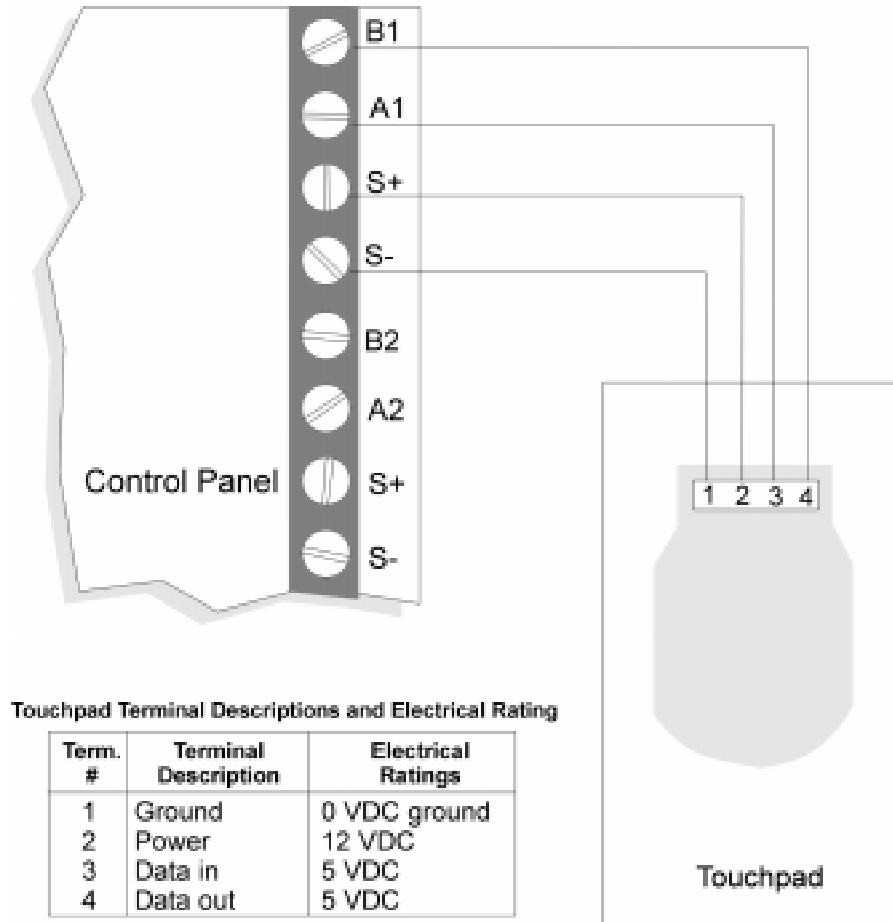


Figure 4-12 Touchpad Wiring

4.15 Zone Installation

4.15.1 Zone Hardware Specifications

The chart below lists all input zone hardware types available with the 4821/4820 modules.

Hardware Module	Description
4821/4820	16 internal zones are built into the 4821/4820 main system board.
4825 Hardwire Zone Expander	Each 4825 adds up to 64 hardwire zones. These zones have all the same features as 4821/4820 internal zones.
4815 Serial Zone Expander	Each 4815 adds up to 128 serial SmartSensor zones. The differences between the SmartSensor zones and all other zones used in the 4821/4820 system are described in detail in the 4815 tabbed section of this binder (part number 150909).
4860C Touchpad Zones	Two input zones are built into the 4860C touchpads. These zones have all the same features as 4821/4820 internal zones (except that the fastest response speed, 10 milliseconds) is not available. The installation is the same as the 4821/4820 internal zones. See Sections 4.15.5 and 4.15.6.
<i>Note: 4421 cannot be used with the 4820 control panel.</i> 4421 Door Access Module	Two input zones are built into the 4421. These zones have all the same features as 4821/4820 internal zones (except that the fastest response speed, 10 milliseconds) is not available. The installation is the same as the 4821/4820 internal zones.

4.15.2 Maximum Number of Zones per System

The maximum number of zones that can be connected to the 4821/4820 is 400.

These zones can be a combination of internal zones, 4815, 4825, 4421, and 4860C touchpad zones.

4.15.3 Zone Configuration

At any moment an input zone can be in one (and only one) of three states, depending on the state of the hardware circuit connected to the zone input. The possible states are Open Circuit, EOL Circuit, and Short Circuit. The value of the EOL resistor used on all input zones in the 4821/4820 system is 4.7k ohms (Silent Knight part number 7628). 4815 SmartSensor zones are an exception because they require a 1.43k ohm resistor (Silent Knight model 4114).

Note: UL zones must be end-of-line supervised.

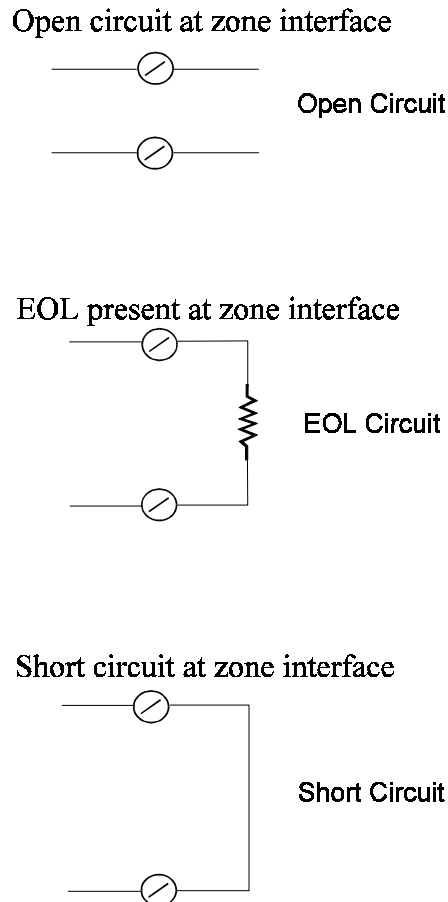
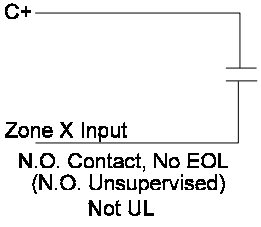
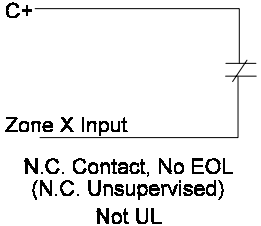


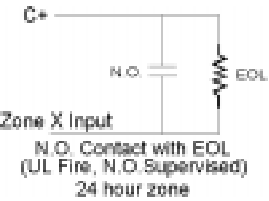
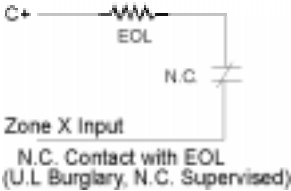
Figure 4-13 Zone States

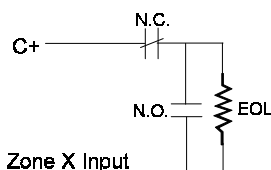
Through programming, you determine how the zone will respond to the three possible states when it is armed and disarmed. The possible system responses for all three states are Ready, Not Ready, Trouble, or Alarm. See Section 4.15.4 for examples of typical zone wiring.

4.15.4 Zone Configuration Examples

The chart below shows some commonly used zone hardware configurations and provides examples of how you might want to program the zone for the disarmed and armed responses. UL zones must be end-of-line supervised.

	State of Zone	Programmed Disarmed Response	Programmed Armed Response
 <p>C+</p> <p>Zone X Input</p> <p>N.O. Contact, No EOL (N.O. Unsupervised) Not UL</p>	<p>Open Circuit Contact open or open hardware fault.</p>	Ready	Ready
	<p>EOL Circuit (This state is not possible for this example, but you still must program a system response for this configuration.)</p>	Not Ready	Alarm
	<p>Short Circuit Contact closed or shorted hardware fault.</p>	Not Ready	Alarm
 <p>C+</p> <p>Zone X Input</p> <p>N.C. Contact, No EOL (N.C. Unsupervised) Not UL</p>	<p>Open Circuit Contact open or open hardware fault.</p>	Not Ready	Alarm
	<p>EOL Circuit (This state is not possible for this example, but you still must program a system response for this configuration.)</p>	Not Ready	Alarm
	<p>Short Circuit Contact closed or shorted hardware fault.</p>	Ready	Ready

	State of Zone	Programmed Disarmed Response	Programmed Armed Response
 <p>Zone X Input N.O. Contact with EOL (UL Fire, N.O. Supervised) 24 hour zone</p>	<p>Open Circuit Open circuit hardware fault.</p>	Trouble	Trouble
	<p>EOL Circuit The contact is open and supervised.</p>	Ready	Ready
	<p>Short Circuit The contact is closed or there is a short circuit hardware fault.</p>	Alarm	Alarm
 <p>Zone X Input N.C. Contact with EOL (U.L. Burglary, N.C. Supervised)</p>	<p>Open Circuit The contact is open or there is an open circuit hardware fault.</p>	Not Ready	Alarm
	<p>EOL Circuit The contact is closed and supervised.</p>	Ready	Ready
	<p>Short Circuit Short circuit hardware fault.</p>	Trouble	Alarm

	State of Zone	Programmed Disarmed Response	Programmed Armed Response
 <p>Zone X Input N.C. and N.O. Supervised Acceptable UL configuration</p>	<p>Open Circuit Open hardware fault or the N.C. contact is open.</p>	Not Ready	Alarm
	<p>EOL Circuit The N.C. contact is closed and the N.O. contact is open.</p>	Ready	Ready
	<p>Short Circuit Both contacts are closed or there is a shorted hardware fault.</p>	Trouble	Alarm

4.15.5 Wiring a 4860C as an Input Zone

Figure 4-14 is a back view of the 4860C touchpad showing the location of its two input zones. These zones are wired and programmed the same as hardwire zones. See Section 4.15.6 for available zone response speeds.

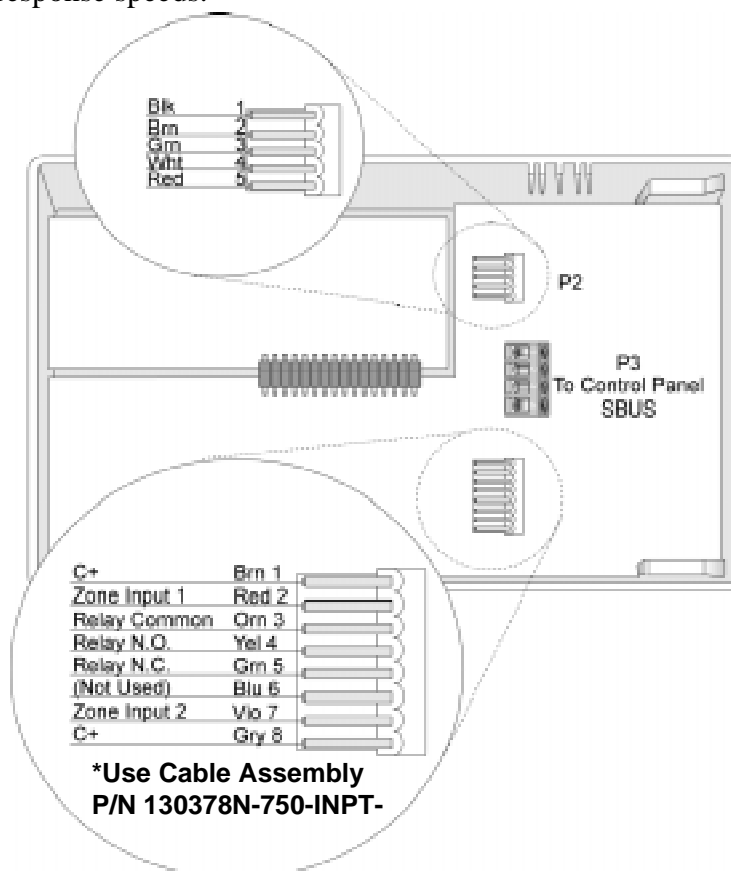


Figure 4-14 Location of 4860C Input Zones

4.15.6 Zone Response (Debounce) Speed

Through programming, you select the zone response speed for the type of hardware you are installing. The chart below shows the response (debounce) speeds available. The very fast rate of 10 milliseconds (needed for devices such as audio glass break detectors) is available only for internal or 4825 type zones. See Section 6 of this manual for details about how to make selections for zone options.

Response Speed	Available with:			
	Internal (Built into 4821/4820 board)	4825 (Hardwire Expansion Zones)	4815 (Serial Expansion Zones)	4860C & 4421 (Touchpad Zones)
10 milliseconds (9-18 msec)	Yes	Yes	No	No
100 milliseconds (55 - 100 msec)	Yes	Yes	No	Yes
250 milliseconds (220 - 330 msec)	No	No	Yes	No
1 second (0.5 - 1.0 seconds)	Yes	Yes	Yes	Yes
10 seconds (5 - 10 seconds) <i>Do not use with smoke verification zones. See Section 6.3.2.3.</i>	Yes	Yes	Yes	Yes

Note: In the Response Speed column above, the range of numbers in parentheses shows the duration (milliseconds or seconds) that the zone response speed represents. The larger number is the minimum duration that the zone must remain in a changed state in order for the change to always be recognized by the system. The smaller number is the maximum duration that the zone can be in a changed state in order to not be recognized by the system.

Example: 10 msec Response Speed

If the zone change of state lasts:	The zone state change is:
longer than 18 msec	ALWAYS recognized
shorter than 9 msec	NEVER recognized
between 9-18 msec	might be recognized, but NOT GUARANTEED

4.16 Smoke Detector Wiring and Operation

Note: The Model 4821/4820 is not compatible with 2-wire smoke detectors.

4.16.1 Smoke Detector Compatibility

This section describes the 4821/4820 reset and smoke verification cycles. Any smoke detectors attached to the 4821/4820 must be compatible with the reset cycle. If you are using the smoke verification feature, smoke detectors must also be compatible with the smoke verification cycle. See Section 4.16.1.1 for information about reset operation. See Section 6.3.2.3 for information about programming the smoke verification option.

4.16.1.1 Smoke Reset Cycle

When you reset a smoke detector, power is off for 6 seconds. The system then applies a restart time of 36 seconds. During the restart time, smoke power is reapplied and the zones are allowed to stabilize. The system will not respond to fire zones during the reset period (but will respond to other types of zones, including fire contact zones).

4.16.1.2 Smoke Verification Cycle

Smoke verification is a four-period cycle:

- Retard Period 18 second delay after a zone is tripped before smoke detector power turns off.
- Reset Period Smoke detector power is off for 6 seconds.
- Restart Period 36 seconds for the smoke detectors to stabilize. The system will not respond to fire zones during this time (but will respond to other types of zones, including fire contact zones).
- Confirmation Period 60 second period during which all zones will be considered instant. If the zone trips a second time during this period, the zone will go into alarm immediately.

Smoke verification will not occur if any fire zones are currently in alarm anywhere in the same partition.

Note: Smoke verification is not compatible with the 10 second zone response (debounce) speed. See Section 6.3.2.3 for more information.

4.16.2 Four-Wire Smoke Detector Wiring

Figure 4-15 shows how to wire one 4-wire smoke detector to the system. Figure 4-16 shows how to wire multiple 4-wire smoke detectors.

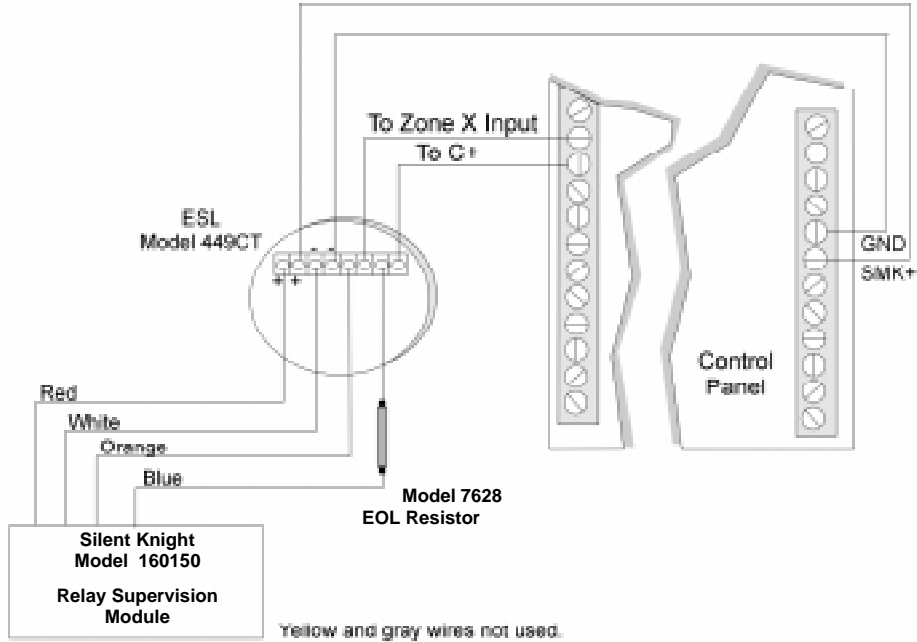


Figure 4-15 Four-wire smoke detector wiring

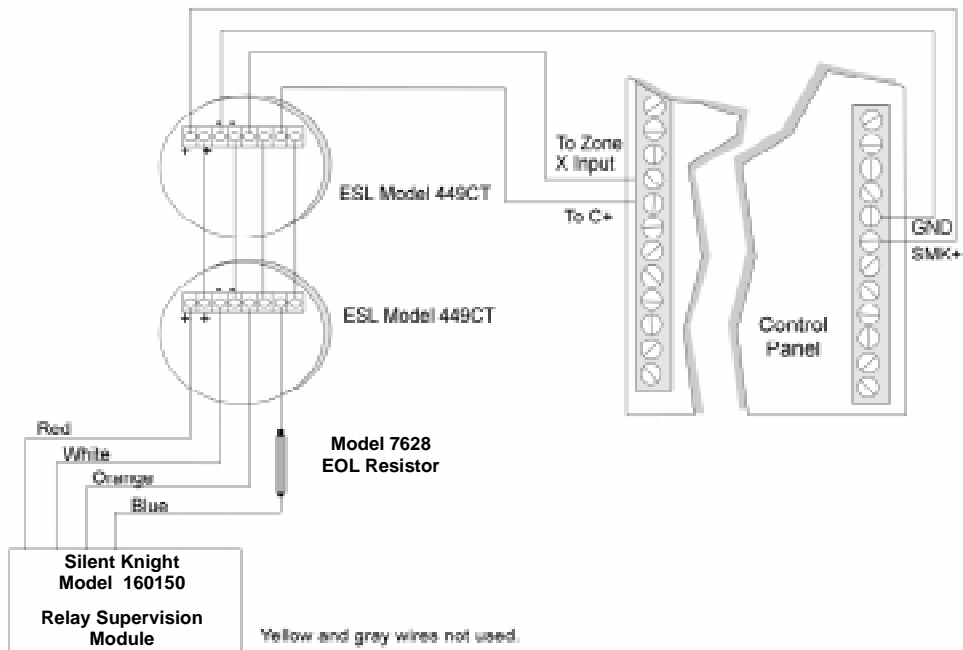


Figure 4-16 Four-wire smoke detectors

4.17 Speaker Wiring

The 4821/4820 can be used with one external and two internal speaker outputs. In UL installations, a bell must be the primary source for alarm annunciation in UL burglary installations. In UL burglary installations speakers can be used as an supplementary source only and are not intended to be used for evacuation purposes.

4.17.1 Internal Speaker Wiring

Each *internal* speaker output can accept one 8 ohm, 5 watt speaker or three 45-ohm, 1 watt speakers in parallel.

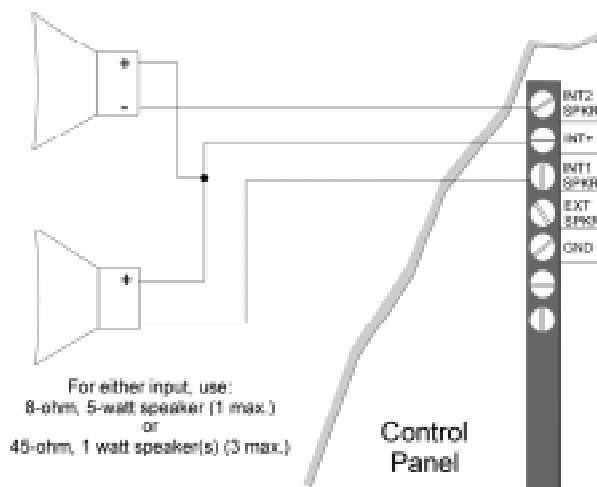


Figure 4-17 Internal Speaker Wiring

4.17.2 External Speaker Wiring

The *external* speaker output can accept one 8 ohm, 15 watt minimum speaker.

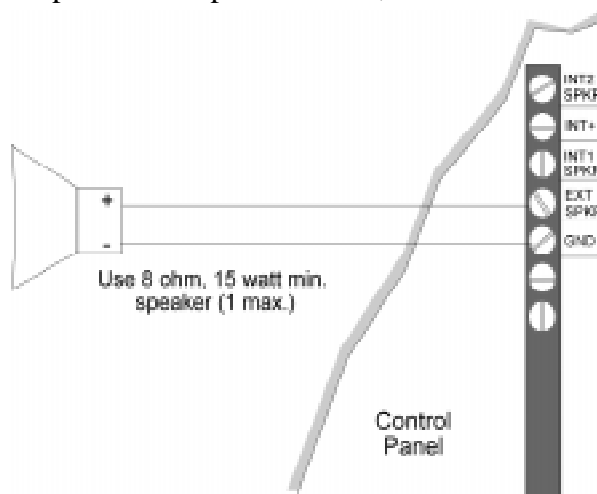


Figure 4-18 External Speaker Wiring

4.18 Bell Wiring

A bell can be attached to the built-in relay on the 4821/4820 and is factory-programmed for this purpose. A programmable I/O script drives the relay. The script must not be deleted. See the *Model 5580 Download Software Installation and Operation Manual* (P/N 150925) for information about how to select the script.

4.18.1 Residential Type Bell Wiring

The configuration shown in Figure 4-19 is for residential use.

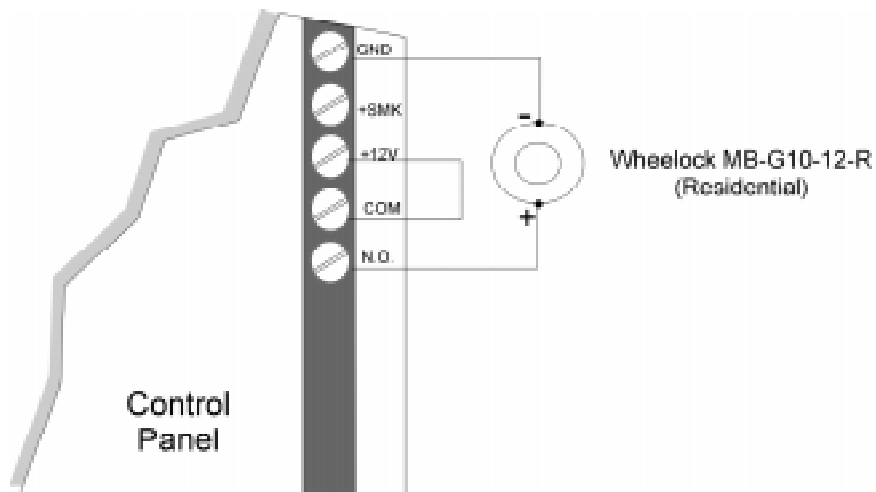


Figure 4-19 Bell Wiring for Residential Use

4.18.2 Commercial Bell Wiring

A bell can be attached to the built-in relay on the 4821/4820 and is factory-programmed for this purpose. If you are installing a UL commercial burglary system, you must use an Ademco AB12 Bell and Box bell and enclosure. Wire as shown in Figure 4-20.

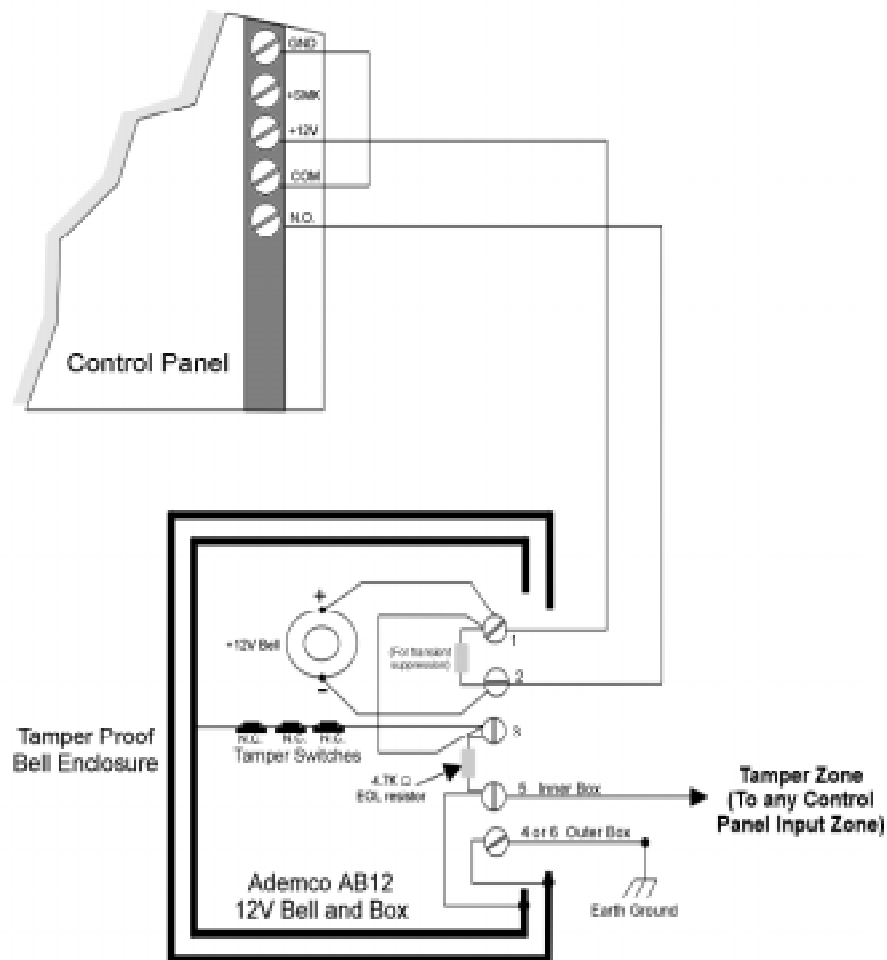


Figure 4-20 Commercial Bell Wiring

4.19 4884 Bell Module wiring

The 4884 is plugged directly onto the P2 connector on the 4821/4820 Control Panel. (Refer to Figure 4-21 for placement of 4884 Bell Module on P2 connector.)

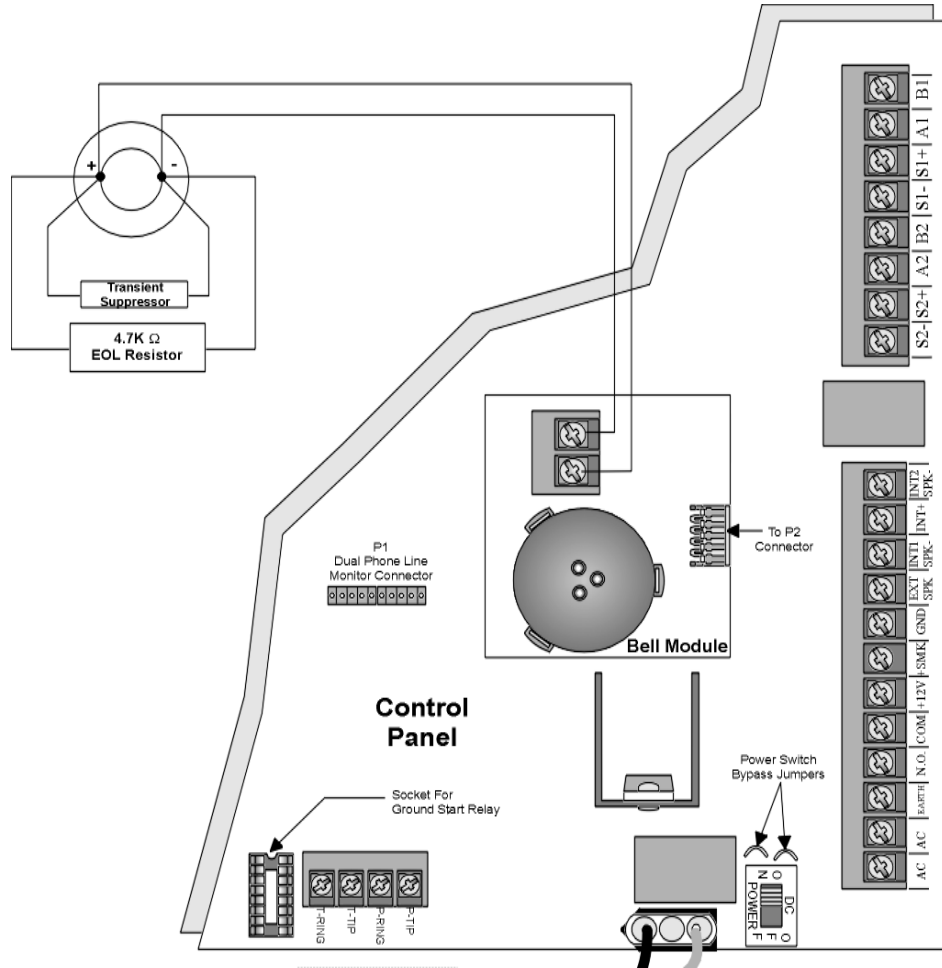


Figure 4-21 Generic Bell Wiring to 4884 Bell Module and Placement on P2

When using the 4884 with the 4821/4820 Control Panel the Bell Cadence option is set to ANSI. (See Section 6.3.1.1 for information on how to set bell cadence.)

4.20 Telephone Line Connection

Connect the 4821/4820 to the telephone line using an RJ31X cord. Silent Knight's Model 7860 is available for this purpose. Connect as shown in Figure 4-22.

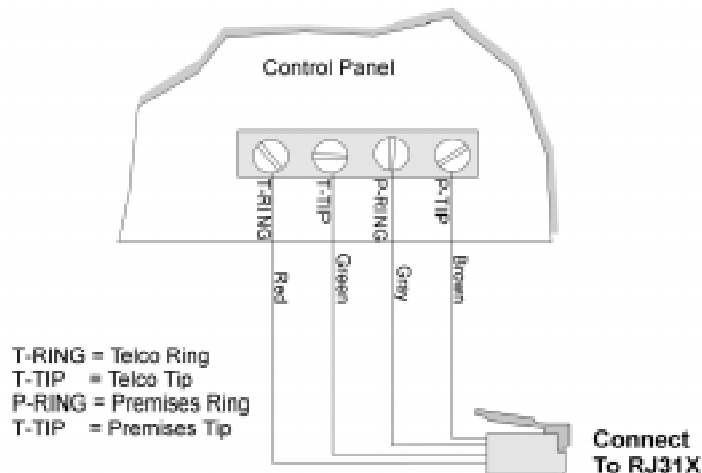


Figure 4-22 Telephone Line Connection

Note: To comply with industry standards, this product is equipped with line seizure. Any time the system's dialer needs to communicate with the central station, it will not be possible to use any telephones that are on the same line(s) as the system. Normally this condition will last approximately one minute, but under adverse telephone conditions, could last for as long as 15 minutes.

4.20.1 Second Phone Line Monitor Connection (Model 4875)

The 4875 provides a second phone line connection. It includes the line monitor and ring detector for the second line.

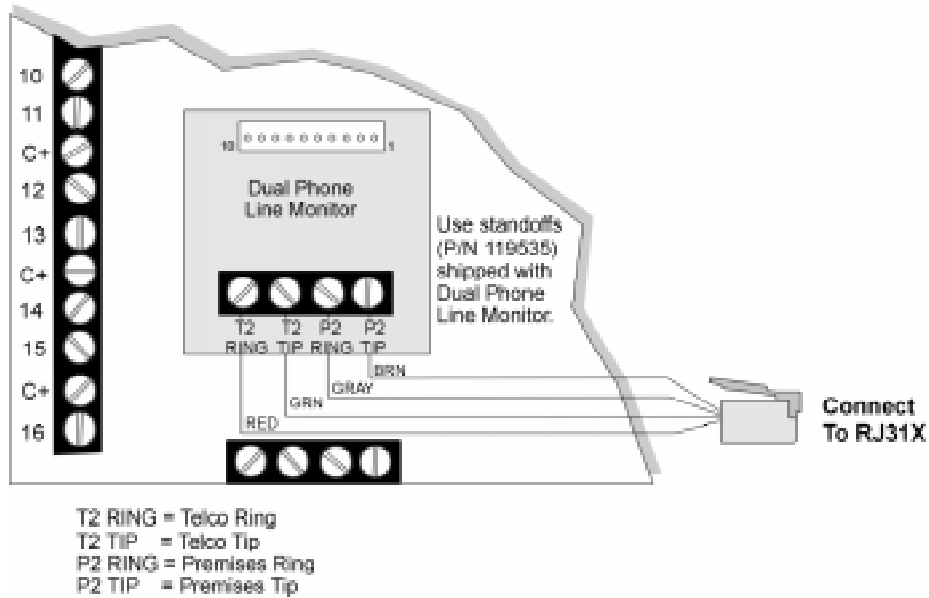


Figure 4-23 Location of Dual Phone Line Monitor (Model 4875) on Model 4821/4820 Board

Table 4-6: Second Phone Line Monitor Terminal Description

Pin Number	Description
1	Circuit Ground
2	+12 VDC
3	Monitor 2
4	Report Relay
5	Power Phone Line 2 Relay
6	Phone Power
7	Circuit Ground
8	Earth Ground
9	Line 2 Tip
10	Line 2 Ring

4.20.2 Ground Start Relay Connection (Model 5211)

Figure 4-24 shows the position of the relay that is required if the ground start telephone network is used.

Note: Ground start cannot be used in UL installations.

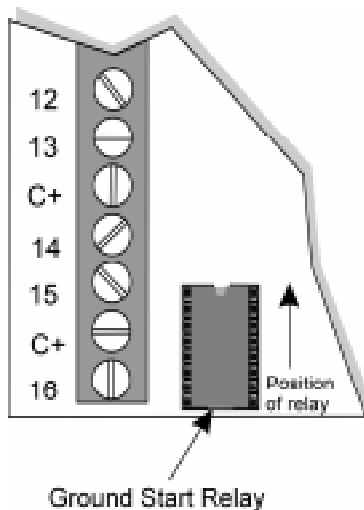


Figure 4-24 Location of Ground Start Relay (Model 5211) on Model 4821/4820 Board

4.21 Built-in Relay

The 4821/4820 board provides contacts for one Normally Open relay rated at 2.5A at 24 VDC.

This relay can be used to activate a variety of devices and can be used in combination with programmable I/O statements. See the I/O Application Programming section of this binder (P/N 150913) for more information.

This relay is factory-programmed as the bell circuit.

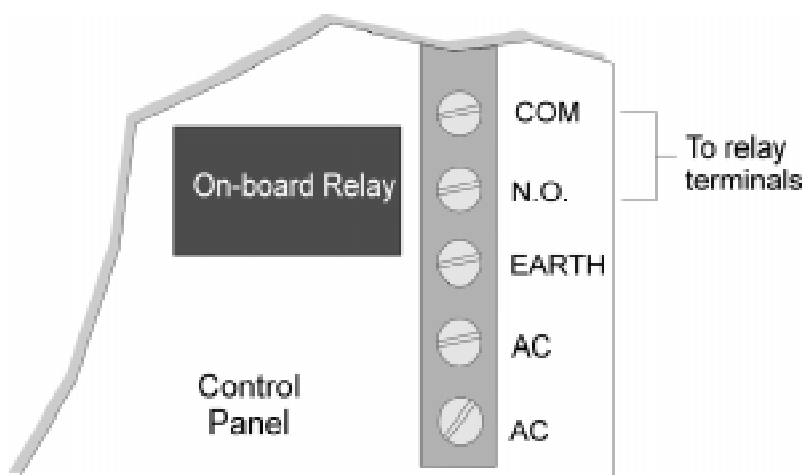


Figure 4-25 Location of Model 4821/4820 On-Board Relay

4.22 DACT Compliant Wiring

The following sections contain diagrams and information necessary for installations to comply with UL 864 and NFPA 72 (Chapter 4) fire alarm systems for central station services.

4.22.1 Trouble Output Relay

A trouble output relay for each power supply, must be connected to a zone input on the 4821/4820 Control Panel (see Figure 4-26). The “Zone Type” should be selected as Tamper and the response characteristics as follows:

Table 4-7: Trouble Output Relay Response Characteristics

	Disarmed Response	Armed Response
Short	Trouble	Trouble
EOL	Ready	Ready
Open	Trouble	Trouble

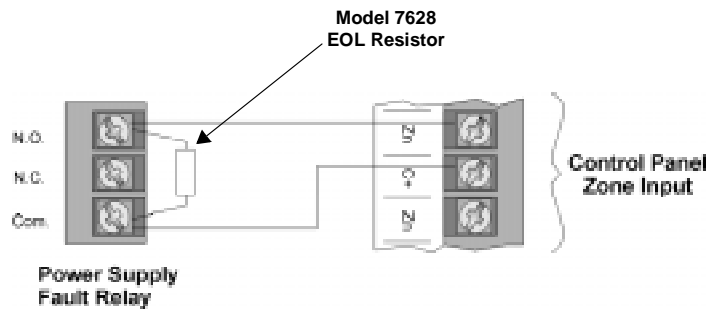


Figure 4-26 Wiring Diagram For a Power Supply Trouble Fault Relay

4.22.2 Monitoring an Existing Fire Alarm Control

Separate zone connections must be made to both the alarm relay and trouble relay when using the 4821/4820 Control Panel to monitor an existing fire alarm control. Zone inputs on the 4821/4820 Control Panel are considered Class B (Style A). Refer to Figure 4-27 and Table 4-8 for wiring configuration and zone programming requirements.

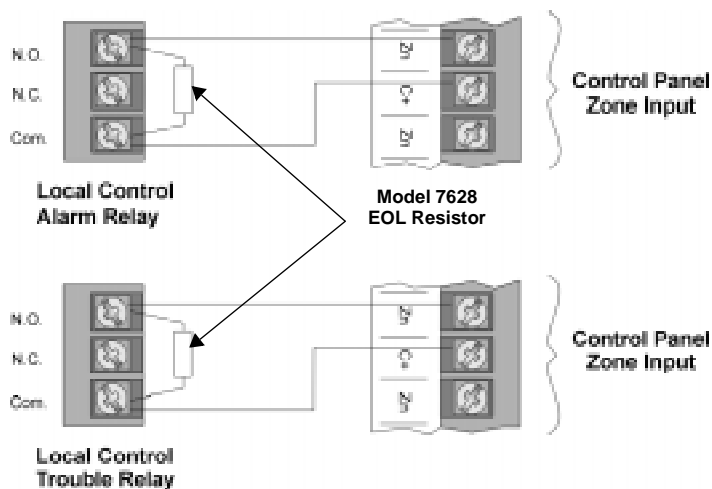


Figure 4-27 Wiring configuration for Alarm Relay and Trouble Relay

Table 4-8: Alarm and Trouble Relay Zone Programming Requirements

	Alarm Relay		Trouble Relay	
	Disarmed Response	Armed Response	Disarmed Response	Armed Response
Short	Alarm	Alarm	Trouble	Trouble
EOL	Ready	Ready	Ready	Ready
Open	Trouble	Trouble	Trouble	Trouble
Zone Type	Fire		Fire	

4.22.3 Monitoring A Sprinkler System

Separate zone connections must be made to both the waterflow switch and water shut off valve when using the 4821/4820 to monitor a sprinkler system. Zone inputs on the 4821/4820 Control Panel are considered Class B (Style A). Refer to Figure 4-28 and Table 4-9 for wiring configuration and zone programming requirements.

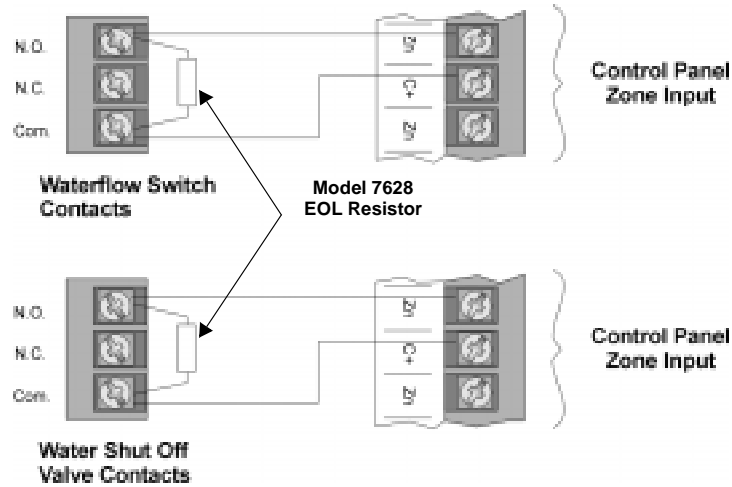


Figure 4-28 Wiring Necessary for Monitoring a Sprinkler System

Table 4-9: Waterflow Switch and Water Shut Off Valve Zone Programming Requirements

	Waterflow Switch		Water Shut Off Valve	
	Disarmed Response	Armed Response	Disarmed Response	Armed Response
Short	Alarm	Alarm	Alarm	Alarm
EOL	Ready	Ready	Ready	Ready
Open	Trouble	Trouble	Trouble	Trouble
Zone Type	Sprinkler		Sprinkler Supervisory	

Note: The Sprinkler Supervisory zone type will display “supervisory”, and the Sprinkler zone type will display “fire” on the 4860 touchpad display, when in the alarm state.

Section 5

System Operation

5.1 Partitions and Areas

Software partitions and areas are optional features that allow you to configure the system for a high degree of flexibility.

The 4821/4820 can be sub-divided into multiple partitions, each of which can operate as independent systems. Each 4821/4820 system can have as many as 8 partitions, and each can report to the central station as separate accounts. Touchpads and zones can be assigned to only one partition.

Note: If you are installing a UL listed application, see Section 1.4.3 for UL requirements regarding partitions.

End-users and the central station may use their partition without being aware that other partitions exist (see). Partitioned systems do, however, share the following system resources:

Telephone lines	Telephone lines and programmable options that affect general operation of telephones.
Sirens (or bells)	By default, sirens (or bells) are global features of the 4821/4820. This means that a siren occurring in one partition would output in all partitions. Siren/bell output can be controlled individually through use of the optional 4880N-750-SDB Status OutputDisplay Module and programmable I/O. See the 4880N-750-SDB Installation Manual, P/N 150912TD1082 for more information.
General system operation	Other operational features that affect the general operation of the system, such as system power-up mode, are considered system-level.

These options are described in greater detail in Section 6.3.1.1.

For controlling access within a system, partitions can be further sub-divided into as many as 8 areas. End-users may be aware that other areas exist within the partition, but they may not have access to those areas. While partitions report as separate accounts to the central station; areas do not. Areas, however, can share touchpads and zones.

Figure 5-1 (next page) illustrates the concept of partitions and areas.

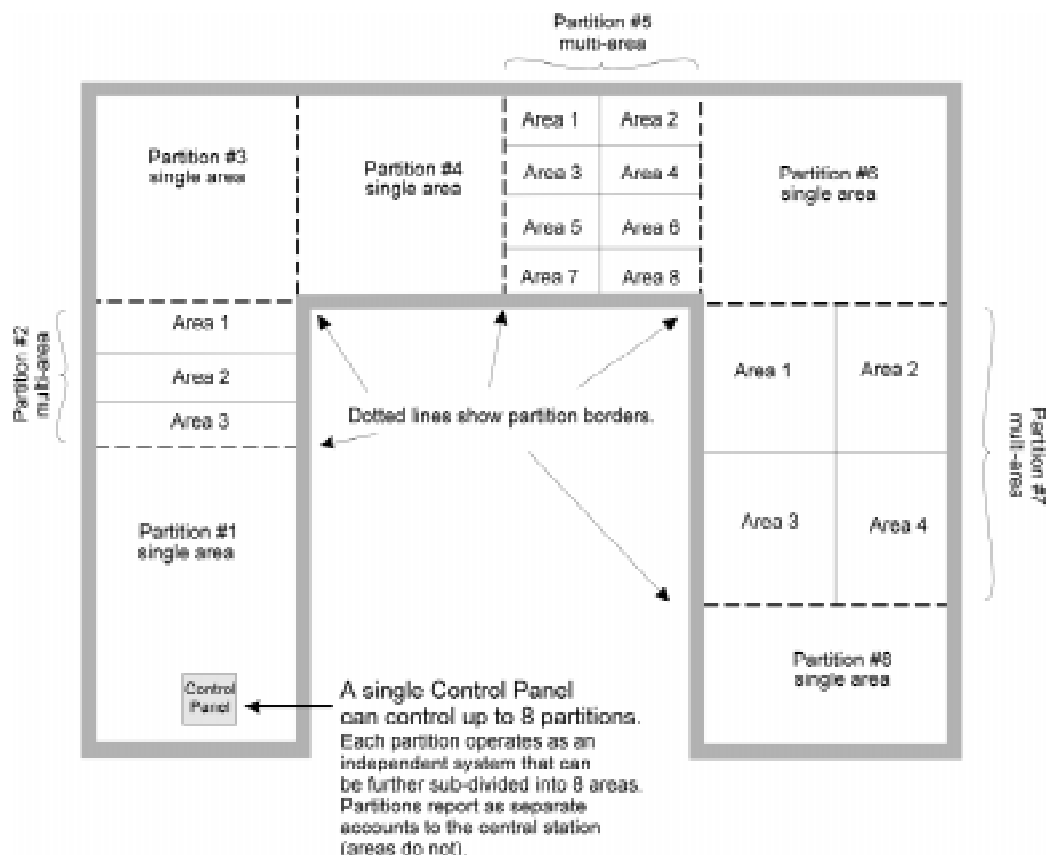


Figure 5-1 Partitioning

The sample applications shown in Figure 5-2 and Figure 5-3 are not acceptable UL applications. See Section 1.4.3 for UL requirements regarding partitions.

Sample Application: 4-Store Strip Mall

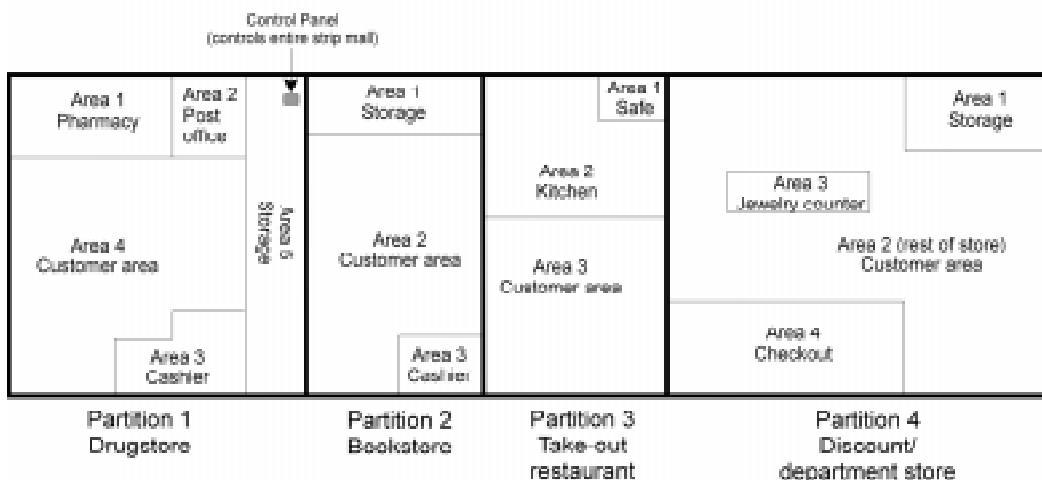
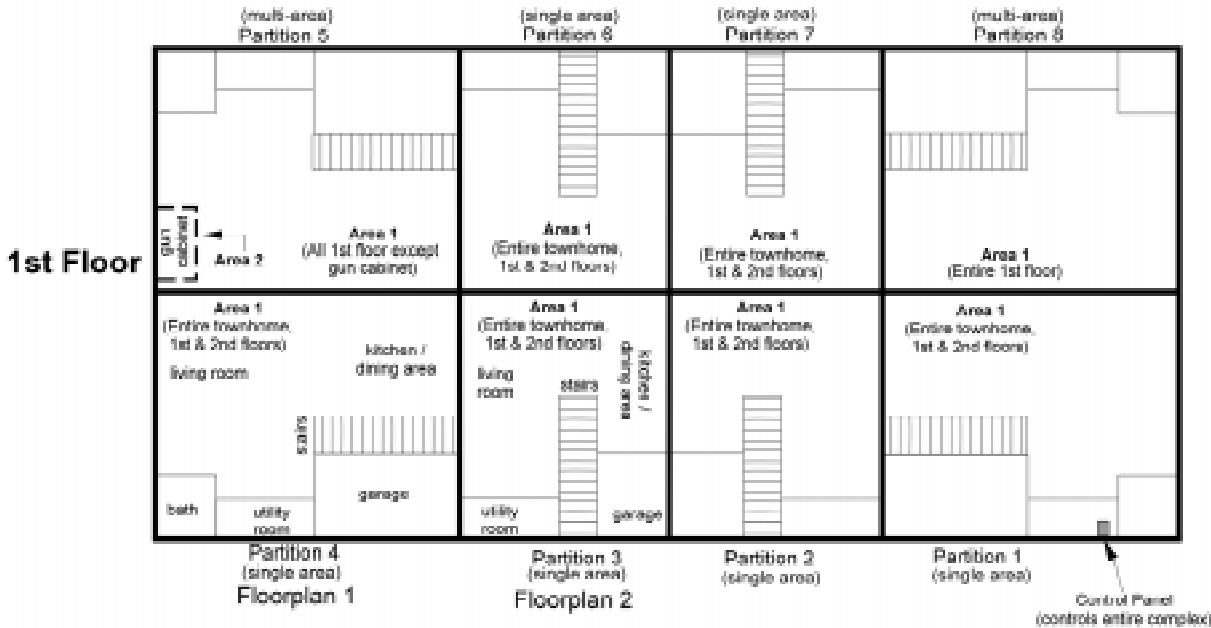


Figure 5-2 Sample Commercial Application Using Partitioning

Sample Application: 8-Unit Townhome Complex



Note: Partitions 1, 4, 5 & 8 use Floorplan 1
Partitions 2, 3, 6 & 7 use Floorplan 2

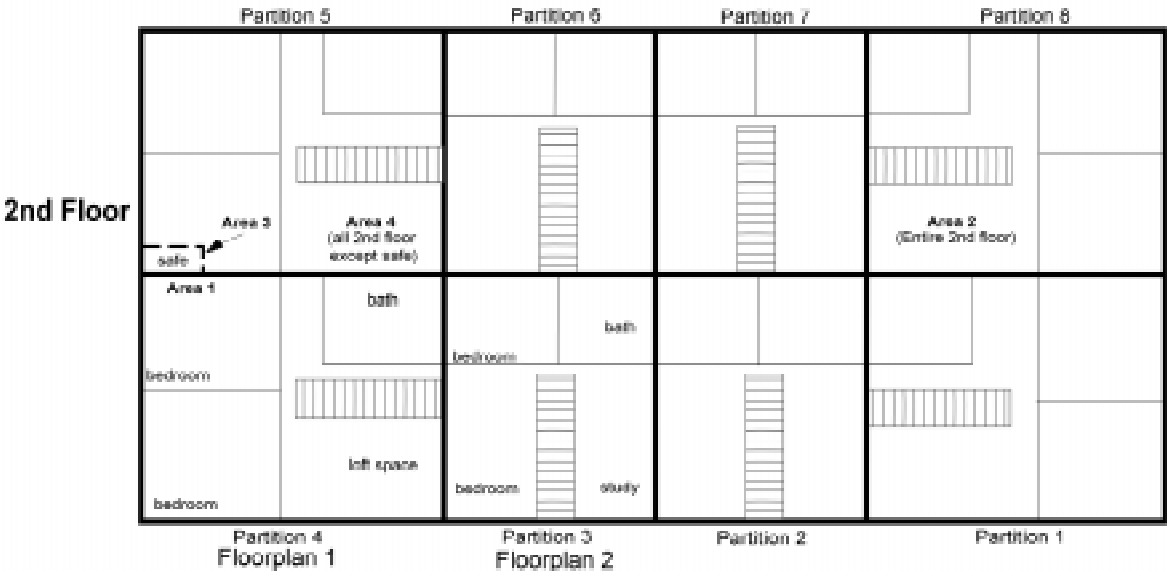


Figure 5-3 Sample Residential Application Using Partitioning

5.2 Touchpad Models

The touchpads shown in Figure 5-4 can be used with the 4821/4820.

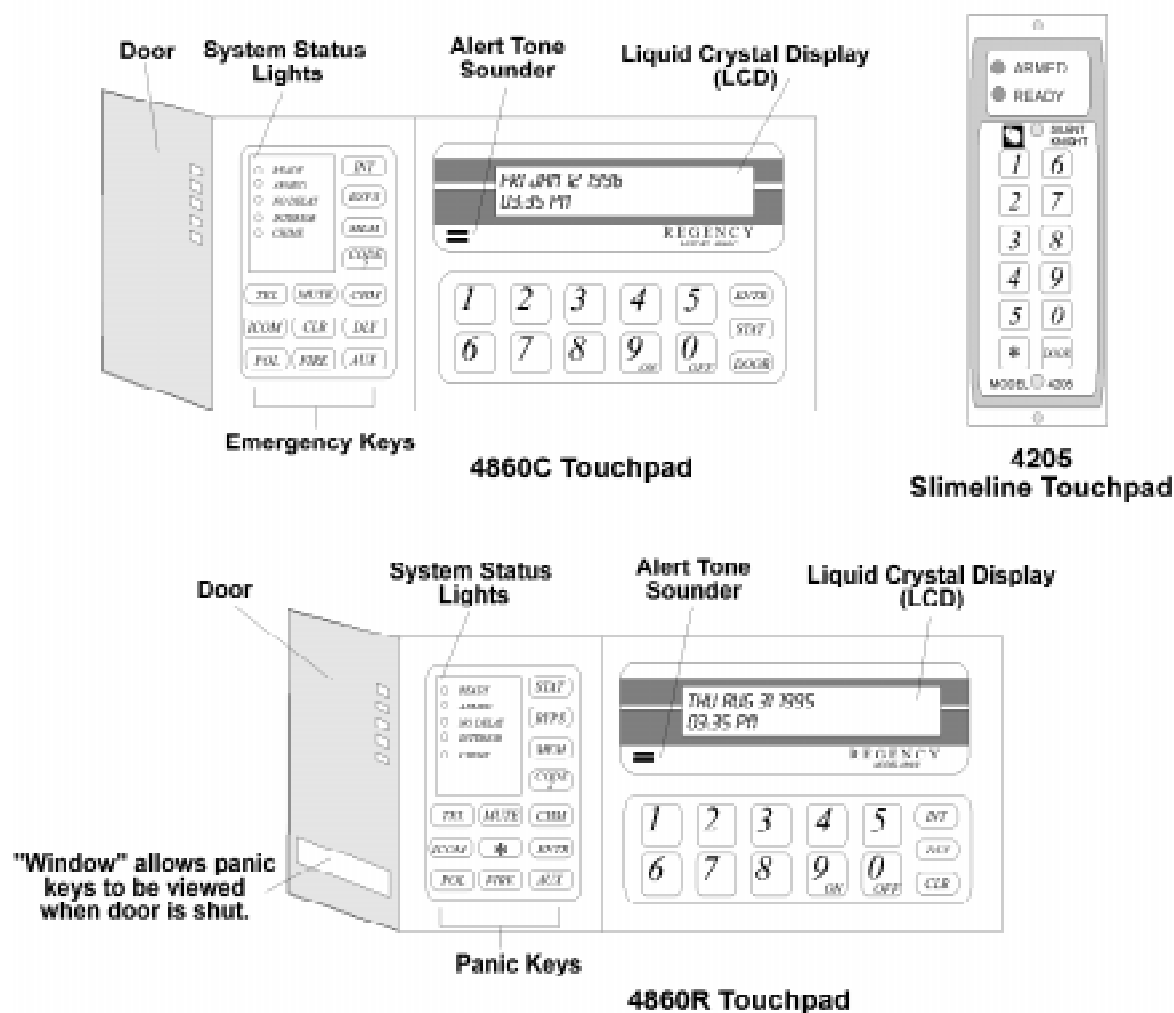


Figure 5-4 Model 4860C Commercial LCD Touchpad, Model 4205 Slimline Door Access Touchpad and Model 4860R (for Residential burglary. and Fire Installations)

Note: The Model 4205 Slimline Door Access Touchpad cannot be used with the 4820 control Panel. The Model 4205 is not UL listed for access control.

5.3 Display Messages

This section of the manual shows the types of system messages that display on the touchpad. See *Troubleshooting* (Section 8) for system trouble messages.

5.3.1 Power Up Messages

The panel initializes itself when power is turned on and when downloading occurs. Figure 5-1 shows the types of messages that display on a touchpad during the panel's initialization routine.

1	<pre>#00000007 BEEP=1 1230120 5/24/95</pre>	<p>Touchpad S/N (line 1) Touchpad software revision (line 2) This message displays again (see Step 5). ("BEEP=1" means the touchpad tones have been enabled.)</p>
2	<pre>(C) Silent Knight Bus 2</pre>	<p>Shows which SBUS this touchpad is connected to.</p>
3	<pre>13:42:53 Mar 22 1995</pre>	<p>Revision time and date of "bootstrap" software (bootstrap not replaceable in the field).</p>
4	<pre>xxxx System Engaged.</pre>	<p>Indicates that the panel is up and running. xxxx = Model Number</p>
5	<pre>#00000007 BEEP=1 1230120 5/24/95</pre>	<p>Touchpad S/N (line 1) Touchpad software revision (line 2) Same message as in Step 1.</p>
6	<pre>16:51:03 Oct 19 1995</pre>	<p>Revision time and date of control panel software. (This information also displays when you press [HSTAT].)</p>
7	<pre>Sun Jan 00 1900 12:00 AM</pre>	<p>Display for setting panel date and time.</p>

Figure 5-1 System Initialization Messages (Example)

5.3.2 Normal Display Messages

Two 2-line messages alternate on the LCD when the system is inactive. These messages display on all touchpads. Through programming, you can customize the messages for each partition (see Section 6.3.2.1).

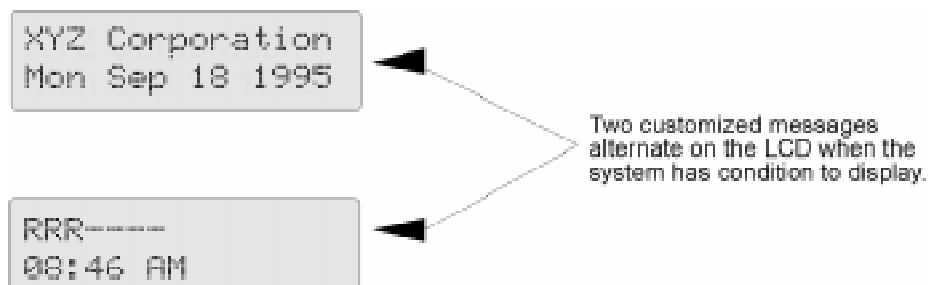


Figure 5-1 Example Normal Display Messages

5.3.3 System Status Messages

Figure 5-1 and Figure 5-2 are examples of messages the system will display when active.

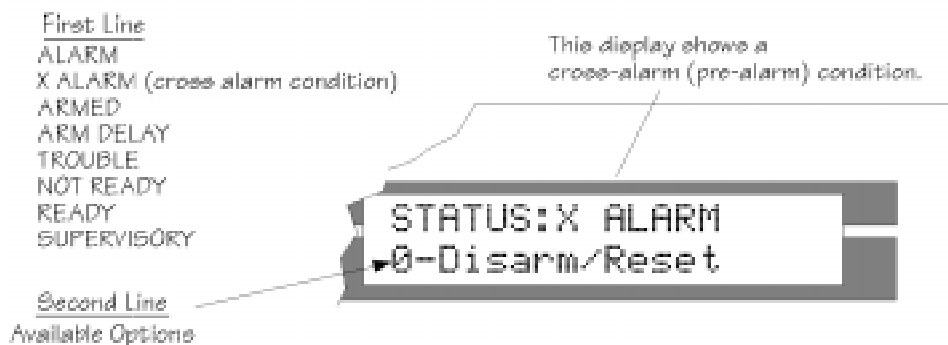


Figure 5-1 Example Status Display Message (Single-Area Menu System)

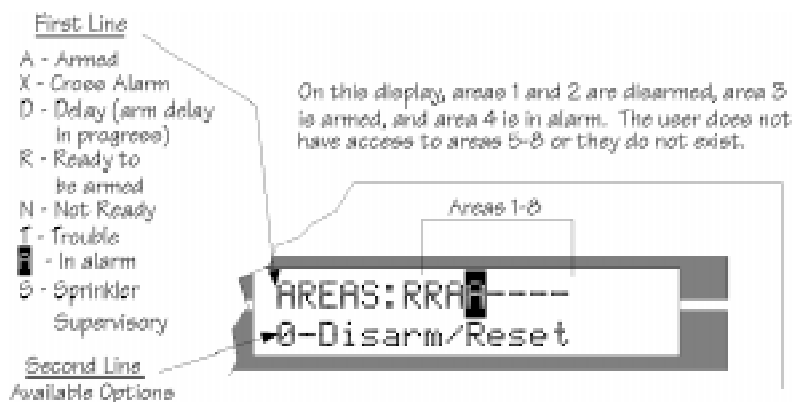


Figure 5-2 Example Status Display Message (Multi-Area Menu System)

5.4 Touchpad Buttons

Table 5-1 describes the functions of the touchpad buttons. The operation of the feature depends on the type of menu system (toggle or interactive) that is being used and whether the system is single- or multi-area. See Section 5.5 for more information.

Table 5-1: Touchpad Function Buttons

Key	Normal Mode Function
DLY	Toggles zone status between delayed and instant. If the system is armed and the No Delay LED is on, zones programmed for entry and exit delay will be instant.
INT	Activates/deactivates interior zones.
0 - 9	Enter data. Used primarily for entering access codes. 0 is used to turn the system OFF and 9 is used to turn the system ON.
STAT	View system status. Displays active alarms and trouble conditions. Also displays not ready zones.
BYPS	This key is used to bypass individual zones and to check which zones have been bypassed.
MEM	Displays event history.
CODE 2	Allows Code 2 users to arm or disarm the system.
MUTE	Silences alarm and trouble audio at speakers and touchpads.
CHM	Controls whether or not a chime tone will be generated when someone trips a chime zone while the system is disarmed.
CLR	Erases a mistake made while entering a code or command.
ENTR	Conducts a variety of tests (see Section 5.9 for descriptions of the tests). In programming mode, accepts programming changes. Also used to exit interactive menus.
POL	Police emergency key. If enabled through programming, transmits an alarm to the central station personnel who then dispatch the police. This key must be held for one full second.
FIRE	Fire emergency key. If enabled through programming, transmits an alarm to the central station personnel who then dispatch the fire department. This key must be held for one full second.
AUX	Auxiliary emergency key. If enabled through programming, transmits a special alarm to the central station personnel who then dispatch the proper authorities. This key must be held for one full second.
DOOR	For door access (appears on 4860C and 4205 touchpads only).
ICOM	This non-functioning key is reserved for future use.
TEL	This non-functioning key is reserved for future use.

5.5 Toggle and Interactive Menu Operations

The 4821/4820 has two operational modes available to all users:

- Interactive Menus: Menu prompts guide users through operation.
- Toggle Operation: Pressing the appropriate key on the touchpad turns the feature on/off in all areas that the user has access to. (There are exceptions to this. See Section 5.7 for more information.)
- Toggle operation is *not* the same in single- and multi-areas. In a single-area system, you can toggle a feature on or off with one button. In a multi-area system, you must first select areas.

End-user operation is fully described in the *4821 Owner's Manual* (P/N 150952) or the *Census 4820 Owner's Manual* (P/N 150842 for residential P/N 150843 for commercial).

5.6 Interactive Menu Overview

The general structure of the interactive menu system is shown below. Available options will vary depending on whether optional features have been enabled through programming for the area. The chart below shows all available options.

Main Menu		
To	Press	
Enter/exit the menu.	Enter a code to enter; press <input type="text" value="ENTR"/> to exit.	
Select an area.	Enter area number (1-8). Options available for that area display. (See sub-menu section below.)	
Arm all areas.	Press <input type="text" value="9"/> Turns the system ON.	
Disarm/reset all areas.	Press <input type="text" value="0"/> Turns the system OFF.	
Mute all trouble conditions.	Press <input type="text" value="MUTE"/> .	
View status of system.	Press <input type="text" value="STAT"/> .	
Interactive Sub-Menu (displays when you select an area)		
To:	Press	From here you can press:
Disarm/Reset this Area	<input type="text" value="0"/>	
Arm this Area	<input type="text" value="9"/>	
Set Arm Time	<input type="text" value="1"/>	
Set Delay	<input type="text" value="DLY"/>	<input type="text" value="9"/> - Make Instant <input type="text" value="0"/> - Use Delays
Set Interior	<input type="text" value="INT"/>	1. Select the interior you wish to control (if both interiors used). 2. Press <input type="text" value="9"/> to turn Interior On or <input type="text" value="0"/> to turn Interior Off
Set Chime	<input type="text" value="CHM"/>	<input type="text" value="9"/> - Chime On <input type="text" value="0"/> - Chime Off
See Current Status of System	<input type="text" value="STAT"/>	
Bypass Menu	<input type="text" value="BYPS"/>	<input type="text" value="0"/> - Bypass Status <input type="text" value="1"/> - Bypass a Zone <input type="text" value="2"/> - Unbypass a Zone Select the zone # then press <input type="text" value="ENTR"/>

5.7 System Operation Summary

Note: If you are using a profile that has not been restricted to a single partition, you will be prompted to select the partition after you enter your access code.

Table 5-2: System Operation Summary

To	Steps	
	Interactive Menu Method	Toggle Method
Arm/disarm entire system or specific areas	<ol style="list-style-type: none"> 1. Enter a code to activate the menu. 2. Select the option that you want to perform. The available options will vary depending on the options enabled for the profile. 	<p>Single area system: Enter a code.</p> <p>Multi-area system:</p> <ol style="list-style-type: none"> 1. Enter a code to activate the menu. 2. Select the option that you want to perform. The available options will vary depending on the options enabled for the profile.
Set Arm Delay Time/Cancel Next Arming	<ol style="list-style-type: none"> 1. Enter a code to activate the menu. 2. Press 1. 3. To set the time: Enter the number of minutes then press ENTR. 4. To cancel the next arming: Press CLR 0. 5. Press ENTR to exit. 	Not available.
Bypass a zone (Zones must be programmed as bypassable.)	<ol style="list-style-type: none"> 1. Enter a code to activate the menu. 2. Enter the area number of the area where the zone you want to bypass is located. 3. Press BYPS to enter the Bypass Menu. 4. Press 1 to bypass a zone. 5. Enter the zone number and press ENTR. 6. Press ENTR to exit the Bypass Menu. 	<ol style="list-style-type: none"> 1. Press # of zone to bypass. 2. Press BYPS. 3. Enter your code if prompted. <p>Example:</p> <p>To bypass Zone 2, press 2 BYPS.</p>

Table 5-2: System Operation Summary

To	Steps	
	Interactive Menu Method	Toggle Method
<p>Reinstate (or <i>unbypass</i>) a bypassed zone</p> <p>A zone cannot be reinstated if reinstating will cause an alarm.</p>	<ol style="list-style-type: none"> 1. Enter a code to activate the menu and, if prompted, select the partition. 2. Enter the number of the area where the zone you want to reinstate is located. 3. Press BYPS to enter the Bypass Menu. 4. Press 2 to reinstate a zone. 5. Enter zone number and press ENTR. 6. Press ENTR to exit the Bypass Menu. 	<ol style="list-style-type: none"> 1. Press # of zone to reinstate. 2. Press BYPS. 3. Enter your code if prompted.
<p>Activate/Deactivate Chime Feature</p>	<ol style="list-style-type: none"> 1. Enter a code to activate the menu and, if prompted, select the area. 2. Press CHM. 3. Press 9 to turn on the chime feature or press 0 to turn off. 4. Press ENTR to exit. 	<p>Press CHM.</p>
<p>Activate/Deactivate Code 2 Feature</p>	<ol style="list-style-type: none"> 1. Enter a code to activate the menu and, if prompted, select the area. 2. Press CODE 2 [Code]. 3. Press 9 to enable or 0 to disable. 4. Press MUTE to exit. 	<ol style="list-style-type: none"> 1. Press CODE 2 + code. 2. Press 9 to enable or 0 to disable. 3. Press MUTE to exit.
<p>Manually Enable/Disable Interior Feature</p> <p>(if not programmed for automatic interior)</p>	<ol style="list-style-type: none"> 1. Enter a code to activate the menu and, if prompted, select the area. 2. Press INT. 3. Press 9 to enable or 0 to disable. 4. Press ENTR to exit. 	<p>Press INT.</p>

Table 5-2: System Operation Summary

To	Steps	
	Interactive Menu Method	Toggle Method
Set System Time	<ol style="list-style-type: none"> 1 [ENTR] + Maintenance or Installer Code. At the menu prompt, enter 1 to select "Time". Enter digit(s) for hour in 24-hour military format, then press [ENTR]. Enter digit(s) for minute, then [ENTR]. <p>Note that if the "Auto DST Adjustment" feature has been enabled, the user will see a message when setting the time.</p> <p>EXAMPLE: To change the system time to 3:45 p.m., the keystrokes are:</p> <p>1 [ENTR] + code + 1</p> <p>1 5 [ENTR]</p> <p>4 5 [ENTR]</p>	
Set system date	<ol style="list-style-type: none"> 1 [ENTR] + Maintenance or Installer Code. At the menu prompt, enter 2 to select "Date". Enter digit(s) for month, then press [ENTR]. Enter digit(s) for date, then press [ENTR]. Enter four digits for year, then press [ENTR]. <p>EXAMPLE: To change the system date to June 21, 1996, the keystrokes are:</p> <p>1 [ENTR] [Code] 2</p> <p>6 [ENTR]</p> <p>2 1 [ENTR]</p> <p>1 9 9 6 [ENTR]</p> <p><i>Note: Valid range for the year is 1900 - 2155. If you enter a number outside the range, you will receive an error message. The day of the week is set automatically.</i></p>	

Table 5-2: System Operation Summary

To	Steps	
	Interactive Menu Method	Toggle Method
Select Aux Menu item	<ol style="list-style-type: none"> Press 2 ENTR + Normal user code (or higher). Select item from menu (0-9). <p><i>Note: Additional information about Aux Menu Items can be found in “5580 Installation and Operation Manual” P/N 150925, Section 3.</i></p>	
View status of system	From the main menu, press STAT .	
View all zones touchpad has access to	Press 1 STAT .	
View event history	<p>Press MEM [Installer Code]. A scrolling menu displays.</p> <p>Press 1 to see Alarm Events.</p> <p>The system will scroll through a list of alarms that have occurred since the last time events were cleared.</p> <p>Press 2 to Clear Alarm Events.</p> <p>Clears alarm events (does not clear all events in event history). (In a multi-partition system, clears only alarm events that have occurred in partitions you have access to.)</p> <p>Press 3 to see History Events. History events include all events that occurred in partitions to which you have access and any system events. The system will prompt you to enter a starting date. Enter the date in mm/dd/yy format.</p> <ul style="list-style-type: none"> Press MUTE to see all events in history. Press ENTR to move through the list of events. Press STAT to view additional information about the event (for example, user number or zone number, if applicable). <p>Press MUTE to exit.</p> <p><i>Note: You cannot manually clear all events in history. All events clear automatically when the panel is powered down.</i></p>	
View revision level of the 4821/4820 operating system	Press 4 STAT . Displays the revision date and time.	
Activate a Duress (Holdup) Alarm	Press 2 digits assigned as duress digits, then enter your access code.	
Activate Emergency Keys	Press FIRE , POL or AUX as needed. Hold for one full second.	
Conduct a System Test	<ol style="list-style-type: none"> Press 3 ENTR + Maintenance code or Installer code. Select the test you want to conduct from the menu that displays. (See Section 5.9 for descriptions of the tests.) 	

5.8 System Maintenance Operations Summary

The operations described in the chart below are intended to be performed by the person(s) responsible for installing and maintaining the system. Access privilege rights needed to operate the function are indicated in the chart. See Section 6.3.5 for an explanation of the various types of access rights.

To	Press	From Here You Can Press
<p>Test System</p> <p>See Section 5.9 for descriptions of the tests.</p>	<p>3 ENTR [Maintenance or Installer Code]</p>	<p>0 - Wlk Tst no Rprt</p> <p>1 - Wlk Tst w/Rprt</p> <p>2 - End Walk Test</p> <p>3 - Do Dialer Test</p> <p>4 - Dialer Reset</p> <p>MUTE - Exit Menu</p>
<p>Send Data to/from the Panel</p>	<p>4 ENTR [Maintenance or Installer Code]</p>	<p>1 - Internal Phone</p> <p>2 - 4824 Modem</p> <p>3 - 4824 Direct</p> <p>MUTE - Exit Menu</p> <p>See Section 5.10 for explanations of these options.</p>
<p>Show Devices</p> <p>Devices display in the order they were added to the system.</p>	<p>5 ENTR [Maintenance or Installer Code]</p>	<p>1 - Touchpads</p> <p>2 - 4824s)</p> <p>3 - 4815s)</p> <p>4 - 4825s)</p> <p>5 - 4880</p> <p>6 - All types.</p> <p>MUTE - Exit Menu</p>

To	Press	From Here You Can Press
<p>Diagnostics For Model 4815 Serial Zone Expander.</p>	<p>6 <input type="button" value="ENTR"/> [Maintenance or Installer Code]</p>	<p>See the 4815 Installation Manual, P/N 150909, for information about these options.</p>
<p>Add or delete users from the touchpad</p>	<p>7 <input type="button" value="ENTR"/> [Maintenance or Installer Code]</p>	<ol style="list-style-type: none"> 1. Enter the ID at the prompt. (This is the number of the user, not the access code.) 2. Enter the number of the profile to be used with this user. (Range from 1-9999.) 3. Enter the access code for this user. 4. At the Swipe / Type Card display, enter the encoded card PIN or present the card to the reader and press <input type="button" value="ENTR"/>. 5. Press <input type="button" value="MUTE"/> to exit.
<p>Program System</p>	<p>8 <input type="button" value="ENTR"/> [Installer Code]</p>	<p>Brings up a menu for programming system options. See Section 6.2.2.2 for more information.</p> <p>The recommended method of programming is through the 5580 Upload-Download Software.</p>
<p>Program Sensor This menu is for programming SmartSensors used with the 4815 Serial Zone Expander.</p>	<p>9 <input type="button" value="ENTR"/> [Installer Code]</p>	<p>See the 4815 Installation Manual, P/N 150909, for information about these options.</p>

5.9 System Test Descriptions

This section describes the walk and dialer tests and dialer reset operation in detail. See Section 5.8 for instructions about how to run the tests.

5.9.1 Walk Test

The 4821/4820 can perform two types of walk tests, 1) walk test with report and 2) walk test without report.

- When a Walk Test without Report is executed, central station reporting is disabled. The system reports a “Test Start” event, but no alarms or other events will be reported until the end of the walk test.
- When a Walk Test with Report is executed, central station reporting continues to operate normally according to the individual account set up.

During a walk test, the audio alarm shutdown is defaulted to two seconds. This allows the installer to arm the panel and then trip each zone in turn. As each zone is tripped, the speaker output will sound for two seconds and then shut down. This is true for all zones, including those that have been programmed not to allow bell shutdown. All zones will be allowed to restore two seconds after they go into alarm.

The Walk Test times out after 15 minutes. When the test is being conducted, the message

```
WALK TEST ACTIVE  
___ sec to go
```

displays on the LCD. The second line indicates the number of seconds before timeout occurs. You can end the walk test manually by selecting option 2 “End Walk Test” from the Walk Test menu.

5.9.2 Dialer Test

When the dialer test executes, a single test report is sent to each account that has been programmed as Must Report for test events.

5.9.3 Dialer Reset

When a dialer reset is conducted, all reporting is immediately aborted. All events (including those that have not yet been reported) are cleared. The dialer remains enabled and will report any events that occur after the reset.

5.10 Communicating with the Computer

This section of the manual describes communication initiated by the panel. See the *5580 Upload-Download Installation and Operation Manual* (P/N 150925) for information about communication initiated by the computer.

If you are using the 4824 or phone lines to communicate, communication may be initiated from either the panel or the computer.

- If a Requested Download or Requested Upload task is on the 5580 queue, you can process the task from the panel. Follow the steps in Section 5.10.1.
- If more than one task for the same account is on the queue, all tasks will be processed starting with the task at the top of the queue (the “oldest” task). The 5580 processes tasks in the order first in, first out.
- If no task for the account is on the 5580 queue, you can send an Unsolicited Upload. Follow the steps in Section 5.10.1. An “Unsolicited Upload” task will appear on the 5580 queue.
- If the computer running the 5580 software has been set up to *not* accept unsolicited uploads, the upload will occur, but the uploaded information is not retained. Instead, a “Called” task will appear on the queue, notifying the 5580 operator that the panel attempted to upload.

5.10.1 Sending Data To and From the Panel

1. Press [Maintenance or Installer Access Code].
2. At the menu, select:
 - Internal Phone. This option is for downloading via the phone lines.
 - 4824 Modem. With this type of communication, a Hayes™ compatible modem is connected to both the 4824 and the PC, allowing for faster data transmission.
 - 4824 Direct. This option is for directly connecting the 4824 to the computer using a null modem cable (both the computer and the 4821/4820 are on-site).
3. If you select either 4824 option (2 or 3), you will be prompted to select the 4824 from the list of 4824s installed in the system.
4. If the phone number that displays is not correct, enter the correct digits and press .
(If the phone number is correct, press to bypass this step.) If you have selected the 4824 Direct option, this step will not appear.
5. If the Account number that displays is not correct, enter the correct digits and press . (If the account number is correct, press to bypass this step.)
6. The system will attempt to communicate. A series of messages indicating that the panel is re-initializing will display. Do not attempt to power down the panel during re-initialization. When re-initialization is completed, the touchpad will display the current date and time. (See Section 5.3.1 if you need more information about the messages that display during initialization.)

If the communication attempt was successful, the message “Ending Remote Communication” displays on the LCD.

If your transfer attempt was unsuccessful, see *Troubleshooting* (Section 8) of this manual for help in diagnosing the problem. See also the manual for the 5580 upload-download software (P/N 150925) for information about communication problems.

Note: When the panel has been programmed to report System Events, the messages “Remote Program Success” or “Remote Program Fail” are sent to the receiver.

5.11 Audible Signals Description and How to Reset

Alarm and trouble condition audible signals are listed below in priority order.

Condition	Speaker Sound	Bell Sound	How to Silence/Reset
Fire Alarm	Rapid high-low siren sound. Each high-low sound lasts approximately one half-second.	1 second on, one second off. <i>Note: This is programmable through bell cadence option. (See Section 6 Table 6-4 for Bell Cadence Options)</i>	To silence: Press <input type="button" value="MUTE"/> and enter your code. To reset: Enter your code and press <input type="button" value="0"/> . See Note 1 below.
<p><i>Note 1: When you reset a fire alarm, displays and speakers shut down while the alarm is resetting (approximately 42 seconds to allow smoke detectors to reset). During this time the system will not respond to fire zones (this does not apply to zones programmed as fire contact). If the alarm condition is still present after the reset is completed, the displays and speakers will reactivate. See Section 4.16.1 for smoke detector compatibility information.</i></p> <p><i>When you reset an alarm in a 24-hour non-fire zone, speakers and displays shut down for five seconds. If the alarm is still present after five seconds, the speakers and displays will reactivate.</i></p>			
Intrusion Alarm	Loud whoop sound; 3 whoops per second.	Steady.	To silence: Press <input type="button" value="MUTE"/> and enter your code. To reset: Enter your code and press <input type="button" value="0"/> .
Emergency Alarm	Slow, high-low siren sound. Each high-low sound lasts approximately six seconds.	Steady.	To silence: Press <input type="button" value="MUTE"/> and enter your code. To reset: Enter your code and press <input type="button" value="0"/> .
Auxiliary Alarm	Low-high siren sound.	Steady.	To silence: Press <input type="button" value="MUTE"/> and enter your code. To reset: Enter your code and press <input type="button" value="0"/> .
Cross Alarm Alert	Three short beeps; repeats every 2.5 seconds.	Not applicable.	Enter a code and press <input type="button" value="0"/> to stop the warning sound that occurs when only one of the cross alarm zones has been tripped.
Exit Delay	Low pitch bell (or “ding”) sound.	Not applicable.	Enter a code.
Entry Delay	High pitch bell (or “ding”) sound.	Not applicable.	Enter a code.

Condition	Speaker Sound	Bell Sound	How to Silence/Reset
Trouble	Two short, low-pitch beeps.	Not applicable.	Press <input type="button" value="MUTE"/> [Code].
Doorbell 1	Slow two-tone (“ding-dong”) bell sound.	Not applicable.	Not applicable.
Doorbell 2	Slow bell (“ding”) sound.	Not applicable.	Not applicable.
Ready and Not Ready Chimes	Two quarter-second chime tones.	Not applicable.	Not applicable.
Audio Test	Loud whoop sound for two seconds on internal and external speakers.	Steady.	Not applicable.

Section 6

Programming

This section of the manual describes all programmable options. The 4821/4820 can be programmed via the touchpad (see Section 6.2) or through the 5580 Upload-Download software (see Section 6.1).

If you are using the 5580, you can send the options to the panel from a remote site or through a portable computer (laptop) at the customer site. Refer to *Model 5580 Upload-Download Software Installation and Operation Manual (P/N 150925)* for more information about remote communication with a panel. See the 4824 tabbed section of this binder (P/N 150911) for more information about sending data to the computer from a laptop on the customer site.

A complete functional test of the system is required following any remote programming or reprogramming of the system.

6.1 Downloading

The Model 5580 Upload-Download Software must be used to program the 4821/4820 from a remote site.

The 5580 software is organized into menus. As you move through the menus, the screens tell you how to select options. Refer to *Model 5580 Upload-Download Software Installation and Operation Manual (P/N 150925)* for more information.

6.2 Touchpad Programming

You can program some panel features from the touchpad. Because of the complexity of the system and the vast amount of options available, touchpad programming is limited to the most frequently used options. You must use the 5580 Upload-Download Software for programming your system.

6.2.1 General Operation

Within each touchpad programming menu, the selections that are currently available cycle on the second line of the LCD. The touchpad cycles through the options until you choose one. Selections are shown in the following format:

Press this touchpad button... MUTE-Exit Menu ...to perform this action (or make this selection).

You can use the editing keys as described in Table 1 for programming.

Table 6-1: Touchpad Programming Editing Keys

Key	Description
MUTE	Press this button to return to the main menu or to the previous level. A prompt will display for you to confirm the changes made in the editing session.
0	The system will prompt you for saving changes. Press 0 to exit the current menu without saving changes.
9	The system will prompt you for saving changes. Press 9 to save changes and exit the current menu.
ENTR	Press this button to see additional options for the current menu.

When you successfully complete a task, the system will sound a tone and momentarily display the message SUCCESS on the LCD.

6.2.2 The Main Menu

To access the main menu, press **8** **ENTR** [Installer's Code]. The touchpad cycles through the following selections:

- | | | |
|------------------|------------------|------------------|
| 1-Install Device | 4-Edit Ph. Lines | 7-Edit Profiles |
| 2-Edit Sys. Opt. | 5-Reprt Accounts | 8-Edit Schedules |
| 3-Edit Partition | 6-Print Accounts | 9-Delete Options |

You can choose a selection at any time during the cycle by pressing the number associated with the selection on the touchpad.

To exit touchpad programming, press the **MUTE** button.

6.2.2.1 1-Install Device

From the main menu, press **1** to access the Install Device menu.

This menu selection allows you to install or replace SBUS expansion devices. Before using this selection, connect the new device(s) to the SBUS and re-apply the system power. The options for the device can be downloaded using the 5580 software with the device serial number set to 0.

The first prompt that you see asks for the device you want to install.

Table 6-2: Device Types and Their Corresponding Number

Number Choice	Device
1	Touchpads
2	4824s) (For N-750-PIs)
3	4815s)
4	4825s)
5	4880
6	All types

Available device types cycle on the second line of your LCD. Devices are listed by serial number.

The second prompt asks for a system configuration that is applied to the selected device. This procedure is repeated for each new device.

6.2.2.2 2-Edit System Options

From the main menu, press **2** to edit access the following system options:

Account Number	Enter the computer account number.
Computer Phone Number	This is the number that the panel dials to contact the downloading computer. See Section 6.3.1.1 for information about how to select characters.
Access Code	Enter a 4-to-8 digit computer security code. The default is 123456.
Call Back	Press 9 to enable the panel to call back the downloading computer after the initial contact is made. Press 0 to disable call back.

6.2.2.3 3-Edit Partition

From the main menu, press for editing selected partition options.

Select Partition	Select the partition to edit.
Menu Rate	Press <input type="text" value="9"/> to make the menus scroll faster. Press <input type="text" value="0"/> to make the menu scroll slower. Each time you press <input type="text" value="9"/> or <input type="text" value="0"/> , the menu scroll rate changes by 0.25 seconds. Valid scroll rates are 0.5-10 seconds.
Menu Timeout	Select the time in seconds (5-120) that is allowed in an interactive menu.
Anti-Passback	Enables or disables the partition door access anti-passback feature. Press <input type="text" value="9"/> to enable or <input type="text" value="0"/> to disable.

6.2.2.4 4-Edit Ph. Lines

From the main menu, press to edit the internal phone line options.

Select Line	Selects which line to edit from either Line 1 or 2. If Line 1 or 2 is programmed as unused in the 5580, the phone line is not selectable.
Answering Machine Bypass	<input type="text" value="9"/> Enables or <input type="text" value="0"/> disables the answering machine bypass feature.
Answer Ring	Enter the number of rings allowed before the panel answers the phone. Select <input type="text" value="0"/> to disable answering. Valid rings are 0-15.

6.2.2.5 5-Reprt Accounts

From the main menu, press to edit reporting account information for accounts that use the phone lines as the reporting device.

Edit #y,nnnn where y = Priority level nnnn = Account number	The main menu allows you to select an account to edit. Press <input type="text" value="0"/> until the account you want to edit displays on the LCD. Press <input type="text" value="9"/> to edit the account displayed.
Partition #:	Enter the account partition number to which this reporting account is assigned.
Report filters	Choose from NO, YES, or MUST report for each event family. Event families are: Open/Close, Alarm, Trouble, Bypass, Alarm Restr, Open Reset, Door Access, Tests, Exceptions, Op/Cl Trbl, System, Accs Denied, Egress, Door Ajar, and Date/Time.
Reporting Format	Choose the reporting format from SIA500, CONTID (for Ademco Contact ID), numeric pager, SIA20, or ASCII. ASCII should be used for printer accounts only.
Account Number	Enter the account number that the account reports.
Phone Number	Enter the phone number that the account dials to report.
Auto Test Schedule	Enter the auto test schedule. Press <input type="text" value="1"/> to scroll through the available time schedules.
Switch Tries	Enter the number of attempts made to this account before switching to a backup account. Valid entries are 1-15.
Total Tries	Enter the number of attempts made to this account before the account fails and causes system trouble. Valid entries are 1-15.

6.2.2.6 6-Print Accounts

From the main menu, press to edit reporting account information for accounts that use the serial port or parallel port as the reporting device.

Edit #y,nnnn where y = Priority level nnnn = Account number	The main menu allows you to select an account to edit. Press <input type="text" value="0"/> until the account you want to edit displays on the LCD.
Partition #:	Enter the account partition number.
Report filters	Choose from NO, YES, or MUST report for each event family. Event families are: Open/Close, Alarm, Trouble, Bypass, Alarm Restr, Open Reset, Door Access, Tests, Exceptions, Op/Cl Trbl, System, Accs Denied, Egress, Door Ajar, and Date/Time.
Reporting Format	Choose the reporting format from SIA500, CONTID (for Ademco Contact ID), numeric pager, SIA20, or ASCII. (Use ASCII for printer accounts only.)
Account Number	Enter the account number that the account reports.

6.2.2.7 7-Edit Profiles

From the main menu, press to edit profiles. The system will display a message indicating which profile you are currently editing and the total number of profiles in the system. For example, Editing Profile #1 of 3.

<p>The Edit Profiles menu has five sub-menus.</p> <p>1-Edit Profile Edit the profile currently selected. 2-Add Profile Add a new profile to the list.</p> <p>For the first two sub-menus, the following selections are available:</p>	
Profile Name	This option is for editing the name of the profile. See Section 6.2.2.8 for complete information about how to select characters.
Privilege level	<p>Select the privilege level. The options displayed are:</p> <p>0 = Code 2 1 = Normal (Normal User) 2 = Maint. (Maintenance Code) 3 = Inst'l (Installer Code)</p> <p>See your Census installation manual if you need to know more about the security rights for these code types.</p>
Security Schedule	Select the security schedule, this schedule controls when the user can perform security functions on the touchpad. Press <input type="text" value="1"/> until the schedule you want appears.
Allow Bypass	Press <input type="text" value="9"/> to enable or press <input type="text" value="0"/> to disable the ability to bypass zones.
Allow Arm	Select Area Arming privilege. Press <input type="text" value="9"/> to enable or <input type="text" value="0"/> to disable area arming.
Allow disarm	Select Area Disarming privilege. Press <input type="text" value="9"/> to enable or <input type="text" value="0"/> to disable area disarming.
Tpad Areas	Select Yes= <input type="text" value="9"/> or No= <input type="text" value="0"/> to restrict a user to the areas programmed for the touchpad, otherwise the user can control any area in the profile Partition Areas.
Card Dis/Arm	Select Yes= <input type="text" value="9"/> or No= <input type="text" value="0"/> if Card can only be used for arming + disarming.
Partition Areas	Enter the number of all areas in the partition this profile will be able to access.
Door List	Select a list of doors that the user is allowed to access. Each door has an associated schedule that controls when access is allowed. The menu has 5 items, 1-Add Door, 2-Edit Schedule, 3-Previous Door, 4-Next Door, and 5-Remove Door.
<p>3-Remove Profile Remove the profile currently selected. 4-Prev. Profile Show the previous profile in the list. 5-Next Profile Show the next profile in the list.</p>	

6.2.2.8 Selecting Characters for Profile Names

Entering characters (letters, symbols, or numbers) is a two-step process in touchpad programming. You must first select a set of characters, then select the actual character. To do this, you can follow the menu prompts on the LCD or use Table 6-2 shown in this document. This section explains both methods.

Using the LCD Prompts

When you have selected the option for changing a profile name, the following scrolling menu of available characters displays:

```

0 - @ABCDEFGHI
1 - JKLMNOPQRS
2 - TUVWXYZ [¥]
3 - `abcdefghi
4 - jklmnopqrs
5 - tuvwxyz { | }
6 - 0123456789
7 - !"#%&'()
8 - *+, -./:;^_
9 - → ← = > ?
STAT - <<
BYPS - >>
ENTR - Accept
CLR - Rubout

```

For example, if you want a profile called *Admin*, use the following steps:

1. Press 0 for the first letter since A is in this group.
2. The LCD will show this group on the first line and corresponding numbers on the second line as follows:

```

@ABCDEFGHI - Char
0123456789 - Key

```
3. The numbers indicate which key to press to select the desired character. In this example, press 1 for A.
4. Use the same sequence of selections for each subsequent letter. The name will appear on the first line of the LCD.
5. Press ENTR to accept the new profile name.

The following keys are available to let you move around and change characters within the profile name you are editing.

STAT-<<	<p>Move backward through the line that you want to edit.</p> <p>The first time you press STAT, your cursor will be under the right-most character in the line. Continue pressing STAT until you reach the character you want to edit.</p>
BYPS->>	<p>Press the BYPS key to move forward through the line you are editing.</p>
CLR-Rubout (Erase)	<p>When your cursor is under the character you want to erase, press CLR to delete the character.</p>
ENTR-Accept	<p>Saves the profile name and returns to the menu.</p>

Example:

Suppose your profile is called “Normal” and you want to change the name to “Typ Empl”.

1. When the profile editing keys are scrolling, press STAT to move into the profile name. Your cursor will be positioned under the “l” in “Normal”.
2. Press CLR to erase the “l”.
3. Press STAT to move to the “r” in “Normal”. Press CLR to delete.
4. Continue pressing STAT and CLR as necessary.

When you have finished erasing all the characters, you can enter the characters for Typ Empl as shown in Table 6-3.

Using the Chart (Table 6-3)

The chart below provides a quick reference for entering characters. The column labeled “1st digit” is for selecting the set of characters. The column labeled “2nd digit” is for selecting the actual character.

Example:

To select uppercase A, press 01.

To select the character & for a profile name, press 76.

To select lowercase u, press 51.

Table 6-3: Entering Characters

2nd digit ⇒		0	1	2	3	4	5	6	7	8	9
1st digit ↓	0	@	A	B	C	D	E	F	G	H	I
	1	J	K	L	M	N	O	P	Q	R	S
	2	T	U	V	W	X	Y	Z	[¥]
	3	`	a	b	c	d	e	f	g	h	i
	4	j	k	l	m	n	o	p	q	r	s
	5	t	u	v	w	x	y	z	{		}
	6	0	1	2	3	4	5	6	7	8	9
	7	(blank)	!	“	#	\$	%	&	‘	()
	8	*	+	,	-	.	/	:	;	^	_
	9	→	←	<	=	>	?				

6.2.2.9 8-Edit Schedules

From the main menu, to edit, add, or remove time schedules for the panel. The touchpad will display `Time Sched a(b)`, where a = the time schedule you are currently editing, and b = which number it is in the time schedule list (the first time schedule displayed will tell you the total number of time schedules in the system).

The main menu provides the following two options:

1-Edit Schedule Edit the currently displayed schedule.

2-Next Schedule Press to scroll through the time schedules in the system.

When you press , the menu for editing a schedule displays. The range number and the number of ranges for the schedule is displayed on the top line. For example, `Range 1 of 2`. The following options are available:

1-Edit Range	Edit the current range. Each range has several menu options. The menu displays the currently selected range <code>Time Range #1</code> and allows you to select the following options:
1-Edit Times	Enter the starting and ending time for the range.
2-Always	Selects an “on all day” range.
3-Never	Selects an “off all day” range.
4-Edit Days	Toggle the days of the week for a weekly type range.
5-Edit Date	Enter the date for a single day range (holiday).
6-View	View the range parameters.
ENTR-Accept	Accept the range parameters.
2-Add Range	Add a new range to the schedule. The range is first edited as for 1-Edit Range above.
3-Remove Range	Deletes the currently selected range from the schedule. <i>Note: this action is immediate; the system does not ask you to confirm the delete action.</i>
4-Prev. Range	Select the previous range.
5-Next Range	Select the next range.
6-Schedule Name	Edit the schedule name. See Section 6.2.2.8 for entering characters.

6.2.2.10 9-Delete Options

Note: This option is available only in Safe Mode.

Safe mode is a mode of system operation that enables you to bypass a problem at the panel and reset the options to their default values. It is useful when a condition exists at the panel that is preventing you from operating your system or communicating with the downloading software. Activating safe mode does not affect the program options in memory. It simply puts the panel in a state during which you can reset the program options with the downloading software.

The Delete Options feature in touchpad programming is only used when attempts to download the system have failed to restore operation. In this case, first delete the current options through touchpad programming. From the main menu, press 9. The system asks for confirmation, and then proceeds to erase all options from the system. After erasing the options, you must restore program options to the system by using the downloading software.

Activating Safe Mode

SBUS devices can be left connected to the system. At least one touchpad is required.

1. Remove power from the system.
2. Connect a jumper wire from SBUS terminal A1 to SBUS terminal A2.
3. Connect a jumper wire from SBUS terminal B1 to SBUS terminal B2.
4. Apply power to the system.

The touchpad will display `Safe Mode Active, Code is 1234`, and then `SBUS 1 shorted to SBUS 2`. These messages remain active until the system is reset without the SBUS jumpers.

While in Safe Mode, the system can be triggered to start a download by pressing

4 ENTR 1 2 3 4 on any touchpad.

Note: Safe Mode will make the baud rate of the PI/Comm device 9600.

Quitting Safe Mode

1. Remove power from the system.
2. Remove the jumpers from the SBUS terminals.
3. Reapply power to the system.

6.3 Programmable Options

The options in this section are listed and organized in the order that they appear on the 5580 software screens.

6.3.1 System Devices List

Use this menu to edit options for the panel or dialer and to add/edit options for the following system devices: Zone expanders (Models 4815 and 4825), serial/parallel module (Model 4824) or Status Output Module (Model 4880N-750-SDB).

6.3.1.1 General System Options Screen

When you choose to edit the “482x Panel” from the System Devices List menu, the programmable options shown below are available to change. These options are also available from the 4821/4820 System SubMenu screen.

Table 6-4: General Systems Screen Options and Descriptions

Option	Description	Default
Bell Test on Power Up	When this option is enabled, there will be 2 seconds of intrusion alarm tones at all speakers and the bell output every time the system is powered up.	Disabled
Automatic DST Adjustment Enabled	Select this option if you want to enable the automatic daylight savings time feature. Daylight savings time adjustments occur on Sundays. The time is adjusted forward on the first Sunday of April and backward on the last Sunday of October. Both changes occur at 2:00 a.m.	Disabled
Bell Module Installed	Select this option to enable supervision of the 4884Bell Module, and the bell output. <i>Note: Must be enabled to comply with Commercial fire DACT UL 864 and NFPA 72 Chapter 4.</i>	Disabled
Call Back Enabled	If this option is enabled, the panel will call the computer back any time an up/download is requested. If this option is disabled, the panel will proceed with the up/download request immediately. The panel will not call the computer back.	Disabled
Allow Uploading/Down-loading When Armed	If this option is enabled, you can perform regular uploads and downloads while the system is armed. (Do not select this option in UL installations.) All areas will be disarmed after the download is complete.	Disabled

Table 6-4: General Systems Screen Options and Descriptions

Option	Description	Default										
Lock Out Enabled	If enabled, user codes are monitored when entered at the touchpad. When an invalid user code is entered consecutively three times in a row, the system locks out the user, by ignoring any touchpad activity for 30 seconds. After 30 seconds elapses, the system will operate as normal. When lock out occurs, the panel reports a tamper event (SIA code JA) along with the touchpad ID.	Disabled										
Hide Codes	If enabled, the user code will be masked by replacing the digits with**** when editing codes through a 4860 touchpad.	Disabled										
Power Up Mode	<p>Use this option to determine the arm/disarm state for all areas in the system. (The system enters this state automatically at power-up; you do not enter a programming mode, such as “Set Time” mode.) To cancel an auto-arming from occurring within 10 minutes after power up, you must set the time or date which will automatically cancel any auto arm timers. Options are:</p> <table border="1" data-bbox="477 758 1219 1241"> <tr> <td data-bbox="477 758 678 867">Disarmed</td> <td data-bbox="678 758 1219 867">System will default all areas to disarmed and will not generate an open report to the central station.</td> </tr> <tr> <td data-bbox="477 867 678 1073">Armed with Auto Bypass</td> <td data-bbox="678 867 1219 1073">System will initiate an auto force arming of all areas with an auto close delay of 10 minutes. All Not Ready zones will be bypassed before the arming, including zones programmed as Unbypassable. If any zones are bypassed, the system will generate a force closing report.</td> </tr> <tr> <td data-bbox="477 1073 678 1241">Armed with No Bypass</td> <td data-bbox="678 1073 1219 1241">System will initiate an auto-arming of all areas and start an auto close delay of 10 minutes. Not Ready zones will not be bypassed and alarms will occur in any Not Ready zones. The system will generate an auto closing report.</td> </tr> </table>	Disarmed	System will default all areas to disarmed and will not generate an open report to the central station.	Armed with Auto Bypass	System will initiate an auto force arming of all areas with an auto close delay of 10 minutes. All Not Ready zones will be bypassed before the arming, including zones programmed as Unbypassable. If any zones are bypassed, the system will generate a force closing report.	Armed with No Bypass	System will initiate an auto-arming of all areas and start an auto close delay of 10 minutes. Not Ready zones will not be bypassed and alarms will occur in any Not Ready zones. The system will generate an auto closing report.	Disarmed				
Disarmed	System will default all areas to disarmed and will not generate an open report to the central station.											
Armed with Auto Bypass	System will initiate an auto force arming of all areas with an auto close delay of 10 minutes. All Not Ready zones will be bypassed before the arming, including zones programmed as Unbypassable. If any zones are bypassed, the system will generate a force closing report.											
Armed with No Bypass	System will initiate an auto-arming of all areas and start an auto close delay of 10 minutes. Not Ready zones will not be bypassed and alarms will occur in any Not Ready zones. The system will generate an auto closing report.											
Low AC Report Time	Use this option to select the number of hours that AC power must be off before a low AC report is generated. Range is 0-15 hours. In a UL listed commercial burglary installation, do not program for more than 8 hours. 0 = immediate report.	6										
Bell Cadence Option	<p>This option is used to select the 4884 bell output pattern when a fire alarm is activated. The bell is driven steady for any alarm other than fire. The piezo on the 4884 bell will be steady “ON” for any trouble or non-fire alarm. For a fire alarm the piezo on the 4884 bell will echo the pattern sounding on the bell output. The Options are as follows:</p> <table data-bbox="477 1591 1219 1793"> <tr> <td>Off</td> <td>No bell is driven</td> </tr> <tr> <td>Steady</td> <td>ON</td> </tr> <tr> <td>Pulse</td> <td>0.5 sec on, 0.5 sec off, repeat</td> </tr> <tr> <td>Temporal</td> <td>3.5 sec on, 0.5 sec off, 3.5 sec on, 0.5 sec off, 3.5 sec on, 2.5 sec off, repeat</td> </tr> <tr> <td>ANSI</td> <td>0.5 sec on, 0.5 sec off, 0.5 sec on, 1.5 sec off, repeat</td> </tr> </table>	Off	No bell is driven	Steady	ON	Pulse	0.5 sec on, 0.5 sec off, repeat	Temporal	3.5 sec on, 0.5 sec off, 3.5 sec on, 0.5 sec off, 3.5 sec on, 2.5 sec off, repeat	ANSI	0.5 sec on, 0.5 sec off, 0.5 sec on, 1.5 sec off, repeat	ANSI
Off	No bell is driven											
Steady	ON											
Pulse	0.5 sec on, 0.5 sec off, repeat											
Temporal	3.5 sec on, 0.5 sec off, 3.5 sec on, 0.5 sec off, 3.5 sec on, 2.5 sec off, repeat											
ANSI	0.5 sec on, 0.5 sec off, 0.5 sec on, 1.5 sec off, repeat											
Computer Account Number Up/Download	Enter the digits for the system account number (6 digits maximum). This is the account number used by the downloading software.	000000										

Table 6-4: General Systems Screen Options and Descriptions

Option	Description	Default
Up/Download Computer Code	Enter 4-8 digits for the code that the up/download computer will use when calling the panel.	123456
Up/Download Computer Phone Number	<p>Enter the phone number of the computer running the 5580 downloading software. Up to 16 digits or characters.</p> <p>Special characters allowed are shown below. Their meaning will vary depending on the modem or telephone system you are using.</p> <p>* , (Comma = 2 second pause)</p> <p># - (no effect used for visual appearance)</p> <p> "space" (no effect used for visual appearance)</p>	[blank]
Service Time Schedule	Enter the time schedule to be used for displaying the system service message (the message that tells users the panel needs a service maintenance call). The service message replaces the normal display once the time window for the message becomes active and will continue to display until it has been manually turned off. To disable the message, select Never as the time schedule for this option.	Never
Service Message Lines 1&2	Enter the two display lines for the system needs service message. (The message must be enabled in the previous option.)	<p>Line 1 = <i>Call your Dealer</i></p> <p>Line 2 = <i>For Service</i></p>
Aux Menu	Is used to create touchpad shortcuts for programmable I/O statements. Through the 5580 software there are ten menu items that can be customized with descriptive names (up to 16 characters in length).	None

6.3.1.2 Dialer Screen

If you are editing options for the dialer, the following options are available for each phone line.

Option	Description	Default
Phone Line Enabled	Enable phone line 1 and phone line 2 as needed. If you are using line 2, you must install the Model 4875 Second Phone Line Monitor. See Section 4.19.1 for information about how to install the 4875.	Phone line 1 enabled Phone line 2 disabled
Answering Machine Bypass Mode	Use this option to enable or disable the answering machine bypass feature. Options are Mode 1 or Disabled. Mode 1 means answering machine bypass is enabled. (This is the only mode currently available.)	Disabled
Answer Rings	Enter the number of times that your phone will ring before the communicator will answer for downloading information. Range is 0-15. Zero disables ring detection.	0
Ground Start Telephone Network Used	If this option is enabled, the system will use the ground start telephone network. Requires a Model 5211 Ground Start Relay. (Ground start cannot be used in UL installations.)	Disabled
Phone Line Monitor Enabled	If enabled, the telephone line will be monitored.	Disabled
Direct Line	Enable this option if you will be connecting the system directly to a Model 9000 Receiver without using the telephone network. If you are using this option, you must select the SIA-20 format. The Model 9103 line card must be used with the 9000.	Disabled
Use Touch-Tone Dialing	If this option is enabled, use Touch-Tone dialing as the primary method of dialing. The first 4 attempts to dial will be Touch-Tone, then alternate between Touch-Tone/Rotary, unless the Do Not Use Rotary option (see below) has been selected. If this option is disabled, rotary dialing will be used.	Enabled
Do Not Use Rotary	This option tells the system to never use rotary dialing when attempting to call.	Disabled
Rotary Dial 66-34	If this option is enabled, the system will use a 34 msec / 66 msec make/break ratio. This ratio is not used in the United States. If this option is disabled, the system uses the United States standard 40 msec / 60 msec make/break ratio.	Disabled

6.3.1.3 Devices Screen

If you are adding or editing options for Model 4815 or 4825 zone expanders, 4824 serial/parallel, or 4880N-750-SDB Status Output Module interface, the following options are available.

Option	Description	Default														
Device Type	Select one of the available device types (4815, 4825, 4824 or 4880N-750-SDB).	N/A														
Device ID	Enter a device ID for the system device you are adding. The device ID is used for reporting device status to the central station and must not be duplicated. Touchpads also have device numbers which must be unique from any used here. (See Section 6.3.2.2 for more information about adding Touchpads to the system.) Valid Range of ID numbers = 1-199 (no duplicates)	[blank]														
Serial Number	Enter up to 8 digits for device serial number. (The serial number appears on a label on the device.) This is the number that the system uses to identify the device. It must be unique for all 4821/4820 devices, including Touchpads. (See Section for more information about adding Touchpads to the system.)	[blank]														
Description	Enter up to 16 characters to describe the location and/or use for this system device. This description is used when displaying status for this device.	[blank]														
* Baud Rate	This is the rate (Bits Per Second) that data will transfer on the serial port. Range is 75 - 19,200 BPS (use Arrow keys to select). Options are: <table border="1" data-bbox="440 1115 1281 1360"> <tbody> <tr> <td>75 BPS</td> <td>2000 BPS</td> </tr> <tr> <td>110 BPS</td> <td>2400 BPS</td> </tr> <tr> <td>134.5 BPS</td> <td>4800 BPS</td> </tr> <tr> <td>150 BPS</td> <td>1800 BPS</td> </tr> <tr> <td>300 BPS</td> <td>9600 BPS</td> </tr> <tr> <td>600 BPS</td> <td>19200 BPS</td> </tr> <tr> <td>1200 BPS</td> <td></td> </tr> </tbody> </table>	75 BPS	2000 BPS	110 BPS	2400 BPS	134.5 BPS	4800 BPS	150 BPS	1800 BPS	300 BPS	9600 BPS	600 BPS	19200 BPS	1200 BPS		9600 BPS
75 BPS	2000 BPS															
110 BPS	2400 BPS															
134.5 BPS	4800 BPS															
150 BPS	1800 BPS															
300 BPS	9600 BPS															
600 BPS	19200 BPS															
1200 BPS																
* Data Bits	Select data bits for the serial port. Range is 5 - 8.	8 bits														
* Parity	Select none, odd or even parity for the serial port.	None														
* Stop Bits	Select stop bits for the serial port. Options are none, half bit, one bit, two bits.	One bit														
* PRN off-line time	Enter the time in seconds. Range is 0 - 255. Zero disables printer supervision but events will still print.	0 (disabled)														
* Answer Rings	Enter the number of times that your phone will ring before the modem will answer for downloading information. Range is 0 - 15. Enter 0 to disable ring detection as well as direct answer.	0 (disabled)														
* Modem Init	Enter up to 20 ASCII characters to send to the modem at the beginning of each call. If this field is left blank, modem supervision is disabled.	[blank]														

**Note: Option appears only if you are adding or editing a 4824 device.*

6.3.2 Partition List and Menus

When you select to Add or Edit a partition from the System SubMenu, a list of partitions displays. Choose the partition you want to edit or select Add to create a new partition. Once you select Add or Edit, a screen displays the partition options menu system. The subsections that follow describe these options in detail.

Option	Description	Default
Partition Name	Enter up to 16 characters to name or describe the partition you are adding. When you choose to add a new or edit an existing partition, the partition options screen (see below) displays.	Partition 1 (- Partition 8)

6.3.2.1 Partition Options Screen

Table 6-5: Partition Options and Description

Option	Description	Default
Automatic Disarm on Door Access	If enabled, all areas within the partition that the user has access to will automatically disarm when door access is granted to a valid user. The option is available only for users who have the ability to disarm.	Disabled
Delayed Zones Instant on Intrusion	If this option is enabled, all exit and entry delayed zones will be instant whenever an alarm occurs in an intrusion zone. This will not occur for other types of zones.	Disabled
Interior Zones Active on Intrusion	If this option is enabled, all interior zones will activate automatically whenever an intrusion alarm occurs in an intrusion zone. This will not occur for other types of zones.	Disabled
Interior and Delay States Locked when Armed	If this option is enabled, users must disarm the system if they want to change the interior and delay states. Typically used to prevent unauthorized persons from deactivating interiors when the system is armed.	Disabled
Unbypass on Disarm	If this option is enabled, any zones that were bypassed since the last disarming period will be unbypassed (reinstated) when the system is disarmed. The unbypassing operation will not occur if it would cause an alarm or trouble. This feature prevents users from leaving a zone bypassed indefinitely if they forget that a zone was bypassed temporarily for a special situation.	Enabled
Deactivate Interior Zones on Disarm	If this option is enabled, interior zones assigned to areas within this partition are deactivated when the areas are disarmed.	Disabled
Activate Interior Zones on Arm	If this option is enabled, interior zones assigned to areas within this partition are automatically activated when the areas are armed.	Disabled

Table 6-5: Partition Options and Description

Option	Description	Default
Code Required for Bypassing	If this option is enabled, users must enter a code to bypass or reinstate (unbypass) zones even if the system is disarmed. This option applies only to zones that can be bypassed manually. It does not apply to unbypassable zones. (Unbypassable zones can be bypassed only through auto closings, which are initiated by the system, not the user.) This option must be enabled in a UL listed application.	Disabled
Fast Restore after Alarm	If this option is enabled, zone restores are reported to the central station immediately. If this option is not selected, restores are not reported to the central station until the end of the audio output shutdown time or until the zone is reset.	Disabled
Use Interactive Menus	<p>When this option is selected, all users will use interactive menus to operate the system.</p> <p>If this option is not selected, users in single-area systems can operate the system by pressing the appropriate key on the Touchpad (toggling method).</p> <p>Multi-area systems always use some type of interactive menu, but if the interactive menu option is not enabled, the operation will be slightly different. Refer to Section 5 for more information about system operation.</p>	Disabled
Anti-Passback Enabled	When enabled, every user entry access must be followed by an exit before a second entry is allowed. A user cannot access two entry doors in a row or two exit doors in a row. When the system is reset or powered up, the first access for a user can be either exit or entry and determines what type of access is allowed to follow. Doors specified as “Inside” doors can only be accessed by those users with “In” status. Doors specified as “Outside” doors can only be accessed by those users who have “Out” status.	Disabled
Entry Delay Beeps on Internal 1 Speaker	If this option is selected, an audible warning tone is sounded at the internal 1 speaker during entry delays for all areas within this partition.	Disabled
Exit Delay Beeps on Internal 1 Speaker	If this option is selected, an audible warning tone is sounded at the internal 1 speaker during exit delays for all areas within this partition.	Disabled
Chime Beeps on Internal 1 Speaker	If this option is selected, an audible chime tone sounds at the internal 1 speaker when an active chime zone changes from Ready to Not Ready (or vice versa). The tones are different to distinguish between door openings and closings. The chime sound occurs only if the zone state change occurs with the zone disarmed.	Disabled
Bell after Closing Report Acknowledged	If this option is selected, whenever a closing report occurs for this partition, two seconds of intrusion alarm tones will sound on the bell output and at all speakers after the report to the central station is complete. This option must be enabled in a UL Central Station Service commercial burglary installation.	Disabled
Two Second Bell Test when Areas Arm	If this option is selected, whenever an area within this partition is armed (either manually or automatically), two seconds of intrusion alarm tones will sound at all speakers and the bell output.	Disabled

Table 6-5: Partition Options and Description

Option	Description	Default																																								
Delay Reporting Bypass Events until Armed	If this option is selected, all zone bypass events for this partition are not reported until areas are closed (armed). This is to minimize the amount of dialer activity to the central station. If areas are never armed, bypass events will never be reported. Bypass events for zones programmed as 24 hr. alarm will not be delayed.	Disabled																																								
Line 1 and Line 2 of Normal Display Message	<p>This option is for entering the messages that scroll on the LCD (when there is no activity at the Touchpad).</p> <p>Enter four lines of text, two lines for each message. If the end-user wants only one message to display with no scrolling, you can accommodate this by entering the same two lines for both messages.</p> <p>Display macros are available. They can be combined as space permits on the LCD.</p> <p>EXAMPLE: If you choose \D \M for line 1, the date will display in MM/DD/YY format and the time will display in 24-hour military format.</p> <p>Options are:</p> <table border="1" data-bbox="493 898 1256 1289"> <thead> <tr> <th>Macro</th> <th>Function</th> <th>Example</th> <th>Width</th> </tr> </thead> <tbody> <tr> <td>\a</td> <td>Abbreviated weekday name</td> <td>Tue</td> <td>3</td> </tr> <tr> <td>\d</td> <td>English date format</td> <td>Jun 23 1996</td> <td>11</td> </tr> <tr> <td>\D</td> <td>Numerical date format MM/DD/YY</td> <td>06/23/96</td> <td>8</td> </tr> <tr> <td>\E</td> <td>European date format DD/MM/YY</td> <td>23/06/96</td> <td>8</td> </tr> <tr> <td>\T</td> <td>AM/PM time</td> <td>11:34 PM</td> <td>9</td> </tr> <tr> <td>\M</td> <td>Military time</td> <td>23:34</td> <td>5</td> </tr> <tr> <td>\P</td> <td>Partition name</td> <td>Front Office</td> <td>1-16</td> </tr> <tr> <td>\A</td> <td>Area status</td> <td>RRNRTAR</td> <td>8</td> </tr> <tr> <td>\S</td> <td>Single area status</td> <td>READY</td> <td>5-9</td> </tr> </tbody> </table>	Macro	Function	Example	Width	\a	Abbreviated weekday name	Tue	3	\d	English date format	Jun 23 1996	11	\D	Numerical date format MM/DD/YY	06/23/96	8	\E	European date format DD/MM/YY	23/06/96	8	\T	AM/PM time	11:34 PM	9	\M	Military time	23:34	5	\P	Partition name	Front Office	1-16	\A	Area status	RRNRTAR	8	\S	Single area status	READY	5-9	<p>Set 1: Line 1 = \a \d Line 2 = \T</p> <p>Set 2: Line 1 = \a \d Line 2 = \T</p>
Macro	Function	Example	Width																																							
\a	Abbreviated weekday name	Tue	3																																							
\d	English date format	Jun 23 1996	11																																							
\D	Numerical date format MM/DD/YY	06/23/96	8																																							
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\T	AM/PM time	11:34 PM	9																																							
\M	Military time	23:34	5																																							
\P	Partition name	Front Office	1-16																																							
\A	Area status	RRNRTAR	8																																							
\S	Single area status	READY	5-9																																							
Menu Scroll Rate	<p>This option controls the number of seconds that a menu item pauses on the display before the next menu item displays. The menu display rate affects all menus throughout the partition, including area control user menus and Touchpad programming menus.</p> <p>Range: 0.5 to 10 seconds (local programming) 0 to 59.59 (remote programming)</p>	2 seconds																																								
Audio Shutdown Time	Enter duration (in minutes and seconds) that audible alarm tones will be active after an alarm has occurred. The shutdown time is extended or repeated whenever a new alarm occurs. Use leading zeros. Range: 00:00 to 59:99	05:00																																								
Interactive Menu Timeout	Enter the number of seconds of no response that will cause the interactive menus to time out. This means that if a user is in an interactive menu but makes no keystrokes within the programmed period, the menu will time out. All menus throughout this partition are affected by the time-out value. Range is 5 to 120 (local programming), 0 to 32000 (remote programming).	20																																								

Table 6-5: Partition Options and Description

Option	Description	Default
Alarm Reporting Delay Time	<p>This option programs the duration of the delay before alarms on zones programmed as Delayed Reporting are reported to the central station. If an alarm is reset before the alarm delay reporting occurs the central station will receive no indication of the alarm, but will receive an open-reset.</p> <p>Range is 0 - 15 seconds. This option must be disabled (set to 0) in UL installations.</p>	1
	<p>The next two options control Swinger Bypass, a false alarm prevention feature. If a zone has been selected as swinger bypass, it means that a specified number of alarms occurring within a specified time frame will cause the zone to be automatically bypassed. You must program both the <i>number of alarms</i> that can occur within the time frame and the <i>duration</i> of the time frame.</p> <p>Note: If you program a number other than zero for Swinger Bypass Timeout, Swinger Bypass Maximum Value should not be zero.</p>	
Swinger Bypass Maximum Value	Enter the number of alarms that can occur within the swinger bypass time-out period before the zone will be automatically bypassed. Range is 0 - 255. A typical selection is 4. (Use the next option to program the duration of the swinger bypass time-out period.)	0
Swinger Bypass Timeout	Enter the number of minutes for the swinger bypass time-out period. If a specified number of alarms occurs within this period, the zone will be bypassed automatically. Note that the zone must be selected as bypassable. Range is 0-255 minutes. Enter 0 here to disable the swinger bypass feature.	0
Duress trigger code	<p>Enter two-digit duress trigger code that will call the central station in a duress situation without causing audible or visible indication.</p> <p>Entering this code as a prefix to a user code causes the system to notify the central station that an intruder has forced the user to enter an access code. A holdup alarm code is sent to the central station using the ID number.</p> <p>The valid 2-digit range is 00-99. If no digits are entered, the duress option is disabled.</p> <p><i>Note: the 2-digit sequence must not be used any place in the user codes.</i></p>	[blank]

6.3.2.2 Touchpads / Card Readers Screen

The options in this menu are for all touchpads and card readers.

Table 6-6: Touchpads and Card Readers Options and Descriptions

Option	Description	Default
Device ID	Select a device ID for the touchpad/card reader device that is to be added to the system. The device ID is used for reporting device status to the central station. All touchpad/card reader devices have a device ID and a 16 character location description used for identification in trouble or programming displays. Range is 1 - 199. Other system devices, such as 4815, 4825, and 4824, must also have device ID numbers that cannot be duplicated here.	[blank]
Serial Number	<p>This option is for entering the serial number for the touchpad/card reader. (The serial number appears on a label on the touchpad.)</p> <p>This is the number that the system uses to identify the device. It must be unique for all 4821/4820 devices (including 4421, 4815 or 4825 zone expanders, and so on).</p> <p>Enter up to 8 digits.</p> <p><i>Note: 4421 cannot be used with the 4820 Control Panel.</i></p>	[blank]
Location	Enter the location description for this touchpad/card reader. (Up to 16 characters.)	[blank]
Auto Unlock Schedule	<p>Each door can be tied to a time schedule, allowing for an automatic lock or unlock capability (for example, automatically opening or closing a business during normal business hours). (See Section 6.3.3 for more information about time schedules.)</p> <p>If you select Never, doors are never automatically unlocked. Locking and unlocking doors allowed only when the proper code or card has been presented. If you select Always, a door is unlocked or open for as long as this time schedule type is selected. For example, use to unlock the door in case of a system failure. Also, for applications where the door has to be installed with a controllable door strike, but is normally left in the unlocked condition.</p> <p>While unlocked, the door strike is continuously activated so that the door can be opened at any time. The Door Monitor zone (see option below) is disabled while the door is unlocked (the door must be closed to allow arming).</p>	Never
Egress	Allows someone to activate door access without the need for a card or code, and without tripping an alarm. A typical application is when someone needs to remotely open a door that is normally locked via the doorstrike. Zone selected must be programmed as “Egress-Input” zone type.	Unused

Table 6-6: Touchpads and Card Readers Options and Descriptions

Option	Description	Default	
Door Monitor	Select the system zone that will be temporarily bypassed when the door relay is active. Typically, you enter the zone number used to monitor the door for security. This makes it possible to momentarily open the door for door access with the system armed and not cause an alarm.	Unused	
Anti - Passback Operation	This feature is intended to prevent a person who has entered the building to “pass back” their access card to another person so that two users can enter with the same card. Options for this feature are shown below. See Section 3.4.5 for complete information.	No Anti-Passback (Anti-Passback feature disabled)	
	No anti-passback		Anti-passback feature disabled. Users can come and go freely from this door.
	Entry		This is a door that will be for entering only. Users who enter it will be registered as In. There must be a corresponding Exit from which users will leave the building.
	Exit		This door is for users to exit if they have entered through an Entry door. Users who use this door will be registered as Out.
	Inside		Door provides access to a secured area within a premises. Users must already have entered through an Entry door.
	Outside		This door can be accessed only by users who have exited through an Exit door.
Operation Mode	If enabled, both door access and other system features can be performed from the Touchpad. Options are:	Security and Access	
	Security and Access		Touchpad can be used for door access and all other system operations.
	Access only		Touchpad is used only for door access
	Security only		Touchpad can be used for standard burglary functions, but not door access.
Access Schedule	Assign a schedule to be used with this touchpad.	Always	

Table 6-6: Touchpads and Card Readers Options and Descriptions

Option	Description	Default	
Mode Within / Mode Outside	These two options are for determining how the system will respond to door access requests that occur within the time schedule (mode within) and outside the time schedule (mode outside). These options apply only to Model 4860C and 4421 Touchpads when used for door access. Options are:	Code or Card	
	Code or Card		Users can use a card or a code to gain access.
	Code only		Only codes will open the door.
	Card only		Only a card will open the door.
	High security		Both a card and a code are required for access.
Area Assignment	Select the areas which will be displayed by this Touchpad. Only areas in this partition will be available to select. Users are assigned to areas through their user profiles.	Area 1	
Enable Door Held Open	<p>When a door is accessed, the door is allowed to remain open for the “Door Held Open Timer” period. If the door is held open longer than the allowed time, the “Door Held Open” event is generated for the Door Monitor Zone ID.</p> <p><i>Note: A report can be sent to central station if selected to do so in Reporting Accounts (see Section 6.3.2.4).</i></p>	Disabled	
Entry beep on PZT	Select this option if you want a short (250 millisecond) beep to sound on the Touchpad as the entry delay counts down seconds to alarm.	Disabled	
Exit Beep on PZT	Select this option if you want a short (250 millisecond) beep to sound on the Touchpad as the exit delay counts down seconds to arm.	Enabled	
Auto Arm Beep on PZT	Select this option if you want a 750 millisecond beep to sound every 10 seconds as the auto arm delay counts down.	Disabled	
Chime Beep on PZT	Select this option if you want a chime or doorbell (or chime and doorbell) sound to occur at the Touchpad when chime or doorbell zones are activated. Chime tones will sound only if the zone is disarmed.	Disabled	
Edit Panic Keys Edit Input Zones	From the Touchpads/CardReaders menu, you can choose to “Edit Panic Keys” or “Edit Input Zones.”	Disabled	

6.3.2.3 Zones Screen

Use this screen to select options for zones. If you are using templates as a way to simplify zone programming and need information for creating them, see the *5580 Upload-Download Software Installation and Operation Manual* (P/N 150925).

Table 6-7: Zones Screen Options and Descriptions

Option	Description	Default
Zone number	Enter the zone number for this zone. Valid range is 1-999. (Total number of system zones is 400.)	1 (-16)
Location	Enter up to 16 characters to describe the zone.	Zone 1-16
Zone type	Choose the zone type for this zone. Options are listed in Table 6-8.	Burglary
Debounce Speed (Zone Response Speed)	Select the response speed for the zone. The chart below shows the response speeds available for the various hardware point zone types. See Section 4.15.6 for more information.	
	Selection	**4421 or 4825 zones 4860C zones 4815 serial zones
	10 msec	X not available not available
	100 msec	X X not available
	250 msec	not available not available X
	1 sec	X X X
*10 sec	X X X	
<p><i>*Note: Do not select the 10 second response speed for zones that will be programmed as smoke verify.</i> <i>**Note: The Model 4421 cannot be used with the 4820 control Panel.</i></p>		
Hardware Point	A hardware point is a number that relates a system zone to its hardware location. Hardware points are not assigned automatically, but a list of available hardware points displays automatically on the programming screen. The installer must select a point for each zone from the list of available hardware points that displays on the programming screen.	Internal Zone 1-16

Table 6-7: Zones Screen Options and Descriptions

Option	Description	Default
Alarm Delay Mode	<p>Use this option to select the type of delay (if any) the zone will have. Options are:</p> <p>No delay The zone will cause alarms immediately.</p> <p>Entry delay A zone selected as an entry delay zone will begin an entry countdown when an alarm is tripped. The alarm tones and reporting will be delayed until the entry delay timer reaches 0 or the user acknowledges it by entering a valid code to disarm the area.</p> <p>Entry delay follower Interior zone annunciations and reports will be delayed when an entry zone is violated.</p> <p>Cross alarm delay When an alarm occurs in a cross alarm zone, an audible warning tone will sound on the internal 1 speaker and all Touchpads in the area, but an alarm will not be reported unless another zone in the same area also goes into alarm. The cross alarm delay is reset when a user acknowledges it by entering a code. Cross alarm delay events are stored in the event history buffer.</p> <p>Smoke verification delay If an alarm occurs in a zone selected as smoke verify, the panel will not automatically go into alarm unless the zone is tripped a second time during the smoke verification cycle. See Section 4.16.1.2 for more information. Note: Do not select the 10 second response speed if you are using this option.</p>	No Delay
Entry Delay	Enter the duration (number of seconds) for the entry delay. Entry delay must be enabled in order for the duration to take effect (see previous option). In a UL installation, the duration of the delay must not be longer than 45 seconds.	0
Interior	<p>The 4821/4820 can have two groups of interior zones which can be controlled separately through the <input type="checkbox"/> INT key. Use this option to assign zones to Interior 1 or Interior 2.</p> <p>Options for assigning zones are:</p> <p>None (no interior zones)</p> <p>Interior 1 (first group of interior zones)</p> <p>Interior 2 (second group of interior zones)</p>	None
Bypassable Zone	If this option is enabled, the zone can be bypassed. Do not select for fire zones.	Enabled
**Silent Alarm	If this option is enabled, alarm conditions will not be annunciated at any speaker or touchpad but will report to the central station. This option has precedence over all audibles, including the “Bell if dialer fails” option (see below).	Disabled
**Invisible Alarm	If this option is enabled, alarm conditions and dialer activity will not display at any touchpad but alarm conditions will report to the central station.	Disabled
Delay Reporting	If this option is enabled, reporting alarm events for this zone will be delayed by the amount of time programmed in the partition options.	Disabled

Table 6-7: Zones Screen Options and Descriptions

Option	Description	Default
Bell If Dialer Fails	If this option is enabled, there will be no bell or external speaker output unless the dialer generates a fail event for this zone. The fail event will be generated when the dialer exhausts the programmed number of attempts. This option does not affect the internal speaker and will not cause any audible signals if the zone is also selected as a silent alarm. This option must be disabled in a UL listed installation.	Disabled
Bell Shutdown in Alarm	If this option is enabled, an audible alarm will shut down after the programmed duration has expired. Any new alarm restarts the delay. (Duration is programmed in the partitions menu.)	Enabled
Local Zone	Alarms for this zone can be sounded locally but there will be no reporting to the central station. This option cannot be selected for any zone in a UL listed central station system.	Disabled
Chime Enabled	Use this option to enable the chime feature for this zone. When the chime feature is enabled (system must be disarmed), the <input type="checkbox"/> CHM key turns the chime feature on and off. When the chime feature is turned on, a chime tone will sound at the Touchpad when someone enters a chime zone (typically a door).	Disabled
Exit Delayed Zone	This option enables the exit delay, a time period that allows the user to exit the premises after the system has been armed. The duration of the delay is programmed in the area menu. The zone must be Ready before the system is armed and when the exit delay period expires, but it may be in any other state during the exit delay period.	Disabled
Zone area assignment	Select the area(s) that this zone will be assigned to. Zones can be assigned to more than one area (but only to one partition).	Area 1
Zone Response (Armed and Disarmed)	Select the system response for each zone input state when the zone is armed and disarmed. You must select a response for all possible input states (shown below). Possible input states for a zone are: Input terminals are short circuited EOL appears at the input terminals Input terminals are open circuited Possible responses to a zone input state are: Alarm Ready Not Ready Trouble See Section 4.15 for more information.	Armed Response Short: Alarm EOL: Ready Open: Ready Disarmed Response Short: Not Ready EOL: Ready Open: Ready

***Note: Both Silent and Invisible must be selected if the system must not have any audible or visual response as in a typical Holdup zone*

Table 6-8: Zone Types

Zone Type	Description	*Alarm Type
Fire	Use with smoke detectors that will be connected to reset smoke power to verify alarms. See Section 4.16.1 for information about smoke detector compatibility.	Fire
Holdup	To indicate a user under duress, silent and/or invisible must be selected.	Intrusion
Emergency	Non-medical emergencies.	Emergency
Panic	Use for manually activated request for emergency assistance.	Emergency
Burglary	Use with intrusion type contacts on doors, windows, etc.	Intrusion
Tamper	Use to indicate that the alarm equipment enclosure had been either tampered with or opened.	Intrusion
Gas	Use with carbon monoxide, radon, and other gas detection devices.	Auxiliary
Undefined	Use for a condition that does not fit any of the other zone types.	Auxiliary
Water	This zone type should be used to indicate water has been detected at the protected premise.	Auxiliary
Heat	Use to indicate that a high temperature has been detected.	Auxiliary
Cold	Use to indicate that a low temperature has been detected.	Fire
Sprinkler	Use with sprinkler flow detectors to indicate alarm when water is flowing.	Auxiliary
Doorbell 1	Slow two tone (ding-dong) bell sound.	Auxiliary
Doorbell 2	Slow bell (ding) sound.	Auxiliary
Key arming input	Can be used with a mechanical key to arm and disarm areas common to the zone.	Auxiliary
<p>The Armed and Disarmed zone responses should have one READY and one NOT READY state each, and no ALARM states. TROUBLE states are allowed and the key input can be supervised. Each time the key input changes from READY to NOT READY, the system will either arm or disarm the areas assigned to the zone using the following rules: 1) If any of the assigned areas are armed, then all areas are disarmed by the key activation. 2) If all of the assigned areas are disarmed, then all areas are armed by the key activation. The areas must be ready to arm in order for any arming to occur.</p>		
Reserved	Do not select.	Auxiliary
Door monitor	Select for zones that will be used with the touchpad Door Monitor function. Door-Monitor zones should be programmed for at least one READY and one NOT READY state. This zone type will cause an alarm if programmed with an ALARM state.	Auxiliary
Fire contact	Use with pull stations or the fire panic key. With this zone type, smoke power does not reset when the zone is reset.	Fire
Egress input	Used for door egress request switch (Exit button).	Auxiliary
Sprinkler Supervisory	Select for zones that will be monitoring the sprinkler shut off valve. This zone is typically programmed to cause an alarm when the system is armed or disarmed. Trouble tones will sound on INT1 speakers and touchpads once the zone enters the alarm region. The 4884Bell Module will not activate for an alarm (supervisory) on this zone.	Supervisory

Note: *Type of alarm that will be sounded and displayed on the touchpad if this zone type is used.

6.3.2.4 Reporting Accounts Screen

A maximum of **32 accounts (4821)** or **8 accounts (4820)** can exist for the entire system. All 32/8 accounts can exist in one partition. Accounts are used to select the events that will be reported and the devices they will report to. Accounts can be set up to report events to central station receivers or to local printers. Only events occurring in this partition will be reported to this account. System events, such as low battery, low AC or phone line faults are an exception. System events will use this account (if the Report System Events option is selected, see below).

All options in this menu can be programmed for each account number.

Table 6-9: Reporting Accounts Options and Description

Option	Description	Default
Account Number	Enter up to 6 digits for this account number.	[blank]
Priority	<p>Enter a unique number for each account. The number will be used to identify the account to the user and to determine the priority order for reporting of accounts (that is, which account will be reported to first, which second, and so on). Priority is <i>ascending</i> order (lower numbers have higher priority).</p> <p>The system attempts to make the programmed number of attempts to the highest priority account. If unable to report, the system will attempt to report to the account with the next highest priority.</p> <p>Range: 1-255</p>	1
Phone Number	<p>Enter up to 16 digits or characters for the phone number for this account. A comma can be used to insert a two second delay. If the Contact ID or SIA-500 reporting format is selected, the dialer will report all accounts that have the same phone number in the same call.</p> <p>Special characters allowed are: * #, -(space)</p> <p>Note: A Comma =two second pause. The - and (space have no effect but are used for visual appearance.</p>	[blank]
Primary	This device will be used first for reporting.	Phone line 1
Secondary	This device will be used if the report to the primary device is not successful. This option is used only if the primary reporting device was a phone line.	[blank]

Table 6-9: Reporting Accounts Options and Description

Option	Description	Default
Events to Report	<p>For the list of events below, select Yes, No, or Must.</p> <p>Selecting Must forces the event to be reported to this account. The dialer will continue attempting to report Must events until all attempts have been made for events selected as Yes or Must. If the event was not successful, it will remain in the report buffer until a new event needs to be reported. The dialer will then attempt to report the old Must event.</p> <p>Selecting Yes allows the event to be reported to this account. If the account has the highest priority, the dialer will attempt to report the event to that account first. If the report was successful, the event will not be reported to any other Yes accounts.</p> <p>Selecting No means the event will not be reported to this account.</p>	No (for all events)
Open-Close	Send normal open and close reports to this account number.	
Alarm	Report alarms to this account number.	
Trouble	Report troubles and trouble restores to this account number.	
Bypass	Report bypassed and reinstated (unbypassed) zones to this account number.	
Alarm Restore	Report alarm restores to this account number.	
Alarm Reset	Report open and reset alarms to this account number.	
Door Access	Report door access events to this account number.	
Test	Report test signals to this account number.	
Date/Time Event	Send the system date and time with events that are reported. Used when the reporting device is 4824 serial or parallel port.	
Exception OPCL (Exception open-close)	<p>Report exceptional open and close events to this account number.</p> <p>An exception open/close event occurs when an area is open or closed outside of the normal open/close time schedules.</p>	
Trouble OPCL (Trouble open-close)	Report open or close troubles to this account, indicating that an area within the partition has failed to arm or disarm during a specified time schedule.	
System	Report all system troubles (including low battery, low AC and phone line troubles) to this account number.	
Door Access Denied	Report door access denied events.	
Door Exit	Report all door exit events.	
Door Left Open	Report doors that remain open after the door held open timer expires.	

Table 6-9: Reporting Accounts Options and Description

Option	Description	Default
Auto Test Schedule	Select the time schedule that will control when the dialer will generate a communication test signal. The communication occurs at the <i>beginning</i> of the selected time window. See Section 6.3.3 for more information about time schedules. Report Tests must be selected in the Events to Report option in order for selection here to take effect.	Never
Attempts Before Switching	Enter the number of attempts the dialer will try to report to this account before switching to the next account. Events are moved to a backup account (if any exists) before switching. Range is 0 - 15. In a UL listed installation, select 5-10.	10
Attempts Before Account Fail	Enter the number of attempts that the dialer will make for this account before an account trouble event is generated. Account trouble events can be used by programmable I/O and are used by the system to make zones audible that are selected to be audible only if the communicator fails. The account will have no further attempts until a new event occurs. Events in the account are moved to a backup account (if any exists). Range is 0 - 99.	10
Reporting Format	Select the reporting format that will be used for this account. Options are:	SIA-20
	SIA-20 Sends a maximum of 20 events in a single call. Sends only one account number per call. This format must be used with Silent Knight's Model 9000 Receiver.	
	SIA-500 Can send up to 500 bytes in a single call. Sends data from multiple accounts in a single call.	
	Contact ID Ademco format	
	ASCII Used with a printer.	
	Numeric Pager Sends Contact ID to a numeric pager.	

6.3.2.5 Areas Screen

Table 6-10: Area Options and Description

Option	Description	Default
Area Number	Select the area to change or add a new area to the partition. The following options will become available to select.	N/A
Area Name	Enter up to 16 characters as a name/description for the area. Area names are displayed in the user interface for area control arming.	Area 1 (- Area 8)
Auto Close Operation	This option controls auto close operation, if used.	Disabled
	Disabled	Auto close not used.
	Force Arm	Zones that are not ready are automatically bypassed when auto arming occurs. This means that even zones programmed as manually Unbypassable will be bypassed. When the system auto-bypasses zones for auto-arming, it generates an auto arming trouble condition. The trouble condition will be active until acknowledged by a user.
	Auto Arm	Not ready zones are not bypassed and any not ready zones will cause alarms when auto-arming occurs.
Exit Delay Timeout	Enter the duration of the exit delay for all zones in this area. During the delay, the LCD will display the number of seconds remaining before the area is completely armed. If you program the exit delay time for zero, there is no exit delay and all zones (whether programmed for exit delay or not) are instantly armed. Range is 0-255. In a UL installation, the duration of the delay must not be longer than 60 seconds.	10
Area Close Time Schedule	Select the time schedule to be used for auto closings and/or exception reporting of manual arming. Exception arming means the arming occurred outside of the time schedule.	Always
Auto Close Exit Delay Timer	This option is for programming the duration of the auto close delay. Enter the duration in minutes. When the auto close feature is enabled, it will be initiated at the end of the auto close time for the area. If the auto close delay time is 0, the auto close will occur immediately; otherwise, the auto close delay will occur at the end of the delay. Range is 0-255 seconds.	10
Area Open Time Schedule	Select the time schedule to be used for auto openings and/or exception reporting of manual disarming. Exception disarming means the disarming occurred outside of the time schedule.	Always
Enable Auto Open	If this option is selected, the system will disarm automatically if the panel is not disarmed at the end of any time range in the Area Open Time Schedule.	Disabled
Audible Trouble Alert When Armed	If this option is selected, trouble alert tones will be audible when the system is armed.	Disabled

6.3.3 Time Schedules Screen

Up to 50/25 time schedules can be defined within the 4821/4820 panel. Time schedules define one or more blocks of time which are used to determine when various system actions will occur and when users have access to the system (see below for list of system actions that follow time schedules).

The time schedules Always and Never should be used where the action of the system should be always or never.

Time Ranges

Within each time schedule there can be up to 20 time ranges defined. Time ranges are either normal or special.

When you select a normal time range, you pick days of the week and enter a beginning and ending time for the range.

A special time range is active one day of the year. Special time ranges will override any normal time ranges that occur on the same day.

Time schedules are used for the following system activities:

- User profiles - Separate time schedules can be used for general system access and for each door that the profile has listed for door access.
- Automatic door unlocking - Each door has a time schedule which is used to determine when the door is unlocked. The door is unlocked when the time schedule is active.
- Automatic arming and disarming - Each area has an open and close time schedule used to determine when auto openings and closings will occur. The open and close will occur at the end of each time range defined in the open and close time schedule. Manual openings and closings will be reported as exceptional openings and closings when they occur outside of the open and close time schedules.

Note: If you don't use auto open or auto close, select "Always" for the time schedules so that openings and closings will be reported as normal rather than exceptional.

- Service message display - All Touchpad displays will show the service message at the end of the time range in the time schedule used for the service message.
- Time-dependent events used in programmable I/O. See the *I/O Application Programming Manual* (P/N 150913), for more information.
- Communicates an auto test when used in account records.

Option	Description	Default
Description	Enter up to 16 characters to describe the time schedule.	Time Schedule 1
Time Range Type	Select the type of range that will be used. Options are: Normal - The time range has specific begin and end times. Always - The time range is always active on specified days. Never - The time range is never active on specified days.	Normal
Days Type	Normal - The time range is active on specified days of the week. Special - The time range is active only on a specific date.	Normal
Normal Start Time	If you have selected a normal time range, enter the starting time that the schedule will be active. Use 24-hour military time. Enter the time in hh:mm format with leading zeros.	[blank]
Normal End Time	If you have selected a normal time range, enter the ending time for each criteria you specified above.	[blank]
Normal Days of Week	If you have selected Days Type as Normal, select the days of the week that the time schedule will be active.	none selected
Special Date	If you have selected Days Type as Special, enter the day of the year that the time schedule will be active.	[blank]

6.3.4 Universal Schedules

A Universal Time Schedule is much like a holiday schedule, allowing you to define multiple schedules that may be used by one or all regular\ time schedules. One or all the universal time schedules may be appended to any regular time schedule to extend the number of available time ranges. Up to eight universal time schedules may be defined per account.

6.3.5 User Profiles Screen

Table 6-11: User Profiles Options and Descriptions

Option	Description	Default
Profile Number	When you choose to add or edit a profile, the following options display.	N/A
Profile Description	Enter a text description of this profile. Up to 16 characters.	Profile 1
Privilege Level	Select the privilege level for all users who will be assigned to this profile. Options are shown below.	Installer Code
	Code 2 User: Lowest privilege level. Same as a normal user but on a temporary basis whenever any Normal or higher level user turns the Code 2 feature on and off. Note that the Code 2 feature must be enabled for the user who is granting access.	
	Normal User: Allows users to: <ul style="list-style-type: none"> • Lock/unlock doors • Reset anti-passback status • Arm/Disarm/Reset areas, change chime, interior and delay states • Set the time and date • Activate/Deactivate Code 2 feature 	
	Maintenance Code User: Same as a Normal User with some programming capabilities. Limited programming user can run system tests and up/download.	
	Installer Code User: Access to all system functions.	
Security Schedule	Select the time schedule that determines when this profile will allow security capabilities.	Always
Allow Zone Bypass	If this option is selected, users will be allowed to manually bypass zones which are bypassable or force arm areas.	Enabled
Allow Arming	If this option is selected, users will be able to arm the partitions/areas listed in the allowed areas list.	Enabled
Allow Disarming	If this option is selected, users will be able to disarm the partitions/areas listed in the allowed areas list.	Enabled
Limit User to Touchpad	If this option is enabled, user touchpad operations are limited to areas which are common to both the touchpad and profile. If this option is disabled, user touchpad operations are limited to the partition/area list that has been programmed for the user's profile. (If the profile is allowed access to more than one partition, the user will first see a menu for selecting a partition from a list.) Once a partition is selected, the user will be able to make selections from the interactive menu for the partition or toggle the arm/disarm state (depending on how the partition has been programmed).	Disabled

Table 6-11: User Profiles Options and Descriptions

Option	Description	Default
Card can only arm and disarm	If enabled, user cannot use their cards for door access. The card will arm or disarm the areas that the card reader is assigned.	Disabled
Door-Time Schedule Assignments	Select all doors for which the profile will have access. Select time schedules associated with each door.	None
Partitions-Areas Assignments	Select the partitions/areas that this user will have access to. Select from previously defined partitions/areas in the pick list.	Partition 1/ Area 1

6.3.6 Users Screen

Table 6-12: User Options and Description

Option	Description	Default
User ID	Select the user ID number for the user. This is the number that gets reported to the central station when the user initiates an event. This is not the user's access code. Range 1-9999.	See below.
User Code	Program the user's access code. Code numbers can be 4 to 8 digits long. Preceding zeros are allowed. <i>Note: Do Not use any 2-digit duress trigger codes in any of the user codes.</i>	Code 1 = 1234 Code 2 = 1111
User Card	Enter the digits encoded in the swipe/proximity card.	[blank]
User Profile	Select one of the previously defined profiles to be assigned to the user.	Profile 1

Section 7

Reporting

The Model 4821/4820 reports to a central station in SIA, the Security Industry Association standard format, and in Ademco's Contact ID. The choice for reporting format is a programmable option; see Section 6.3.2.4 of this manual if you need more information. If you are reporting to the Silent Knight Model 9000 Receiver, you must select the SIA-20 format.

7.1 Compatible UL Listed Receivers

Table 7-1 shows the receivers compatible with the Model 4821/4820 and the reporting formats that can be used.

Table 7-1: UL Listed Receivers

Manufacturer	Receiver Model	Formats
Silent Knight	Model 9000	SIA-20
Ademco	Model 685	Contact ID
Sur-Gard	SG-MLR2-DG	SIA-20 Contact ID
Osborne Hoffman	Quickalert	SIA-20 Contact ID

7.2 SIA Event Codes

Table 7-2 lists the SIA event codes that the 4821/4820 can send. When an “X” appears in the “Not supported by 9000” column, it means that the code cannot be received by the current version of the 9000.

Note: If an unsupported code is sent to the 9000, it is possible that an erroneous message could be printed on the 9000’s on-board printer. Unsupported codes will send correct information through the 9000’s automation computer port.

Table 7-2 SIA Event Codes

Event	Code Transmitted	9000 SIA Upgrade required
AC Restoral	AR	
AC Trouble	AT	
Burglary Alarm	BA#	
Burglary Bypass	BB#	
Burglary Alarm Restore	BH#	
Burglary Trouble Restore	BJ#	
Burglary Trouble	BT#	
Burglary Unbypass	BU#	
Automatic Closing	CA	
Forced Closing	CF#	
Close Area	CG#	
Closing Report	CL#	
Late to Open	CT#	
Door Access Denied	DD	
Door Forced or Door Monitor Alarm	DF#	
Access Granted	DG#	
Door Held Open	DO#	
Door or Door Monitor Alarm Restored	DR#	
Door Monitor Trouble	DT#	
Expansion or Modem Restoral	ER#	
Expansion or Modem Trouble	ET#	
Fire or Fire Contact Alarm	FA#	
Fire or Fire Contact Bypassed	FB#	
Fire or Fire Contact Alarm Restore	FH#	
Fire or Fire Contact Trouble Restore	FJ#	
Fire or Fire Contact Trouble	FT#	

Table 7-2 SIA Event Codes

Event	Code Transmitted	9000 SIA Upgrade required
Fire or Fire Contact Unbypass	FU#	
Gas Alarm	GA#	
Gas Bypass	GB#	
Gas Alarm Restore	GH#	
Gas Trouble Restore	GJ#	
Gas Trouble	GT#	
Gas Unbypass	GU#	
Holdup Alarm or Duress Trigger	HA#	
Holdup Bypass	HB#	
Holdup Alarm Restore	HH#	
Holdup Trouble Restore	HJ#	
Holdup Trouble	HT#	
Holdup Unbypass	HU#	
User Code Tamper	JA# (Door ID)	
Date Changed	JD#	X
Time Changed	JT#	X
User Code Added or Changed	JV#	
User Code Deleted	JX#	
Heat Alarm	KA#	
Heat Bypass	KB#	
Heat Alarm Restore	KH#	
Heat Trouble Restore	KJ#	
Heat Restoral	KR#	
Heat Supervisory	KS#	
Heat Trouble	KT#	
Heat Unbypass	KU#	
Local Program Begin	LB#	
Phone Line Restoral	LR#	
Local Program Success	LS#	
Phone Line Trouble	LT#	
Local Program Fail	LU#	
Automatic Opening	OA	
Open Area	OG#	

Table 7-2 SIA Event Codes

Event	Code Transmitted	9000 SIA Upgrade required
Opening Report	OP#	
Disarm From Alarm	OR#	
Late To Close	OT#	
Panic Alarm	PA#	
Panic Bypass	PB#	
Panic Alarm Restore	PH#	
Panic Trouble Restore	PJ#	
Panic Trouble	PT#	
Panic Unbypass	PU#	
Emergency Alarm	QA#	
Emergency Bypass	QB#	
Emergency Alarm Restore	QH#	
Emergency Trouble Restore	QJ#	
Emergency Trouble	QT#	
Emergency Unbypass	QU#	
Automatic Test	RP	
Power Up	RR	
Remote Program Success	RS	
Data Lost	RT	
Account Trouble	RT#	
Remote Program Fail	RU	
Manual Test	RX#	
Sprinkler Alarm	SA#	
Sprinkler Bypass	SB#	
Sprinkler Alarm Restore	SH#	
Sprinkler Trouble Restore	SJ#	
Sprinkler Supervisory Restore	SR#	
Sprinkler Supervisory	SS#	
Sprinkler Trouble	ST#	
Sprinkler Unbypass	SU#	
Tamper Alarm	TA#	
Tamper Bypass	TB#	
Test End	TE	X

Table 7-2 SIA Event Codes

Event	Code Transmitted	9000 SIA Upgrade required
Tamper Alarm Restore	TH#	
Tamper Trouble Restore	TJ#	
Test Start	TS	X
Tamper Trouble	TT#	
Tamper Unbypass	TU#	
Undefined Zone Alarm	UA#	
Undefined Zone Bypass	UB#	
Undefined Alarm Restore	UH#	
Undefined Trouble Restore	UJ#	
Undefined Zone Trouble	UT#	
Egress Input Alarm Restored	UR#	
Undefined Zone Unbypass	UU#	
Printer Paper In	VI#	X
Printer Paper Out	VO#	X
Printer Online	VY#	X
Printer Offline	VZ#	X
Water Alarm	WA#	
Water Bypass	WB#	
Water Alarm Restore	WH#	
Water Trouble Restore	WJ#	
Water Trouble	WT#	
Water Unbypass	WU#	
Flash Checksum Error	YF	X
Account Trouble Restore	YK#	
Power Supply Trouble	YP	X
Power Supply Restored	YQ	X
System Battery Restoral	YR	
System Battery Trouble	YT	
Cold Alarm	ZA#	
Cold Bypass	ZB#	
Cold Alarm Restore	ZH#	
Cold Trouble Restore	ZJ#	
Cold Trouble	ZT#	
Cold Unbypass	ZU#	

7.3 Ademco Contact ID Event Codes

Table 7-3 lists the Ademco Contact ID event codes that the 4821/4820 can send.

In the “Event Qualifier” column: 1 = New event
 3 = Restore event

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/User #	SIA Event Description
101	1	00	Zone #	Emergency Alarm
101	3	00	Zone #	Emergency Alarm Restore
110	1	00	Zone #	Fire Alarm
110	3	00	Zone #	Fire Alarm Restore
113	1	00	Zone #	Sprinkler Alarm
113	3	00	Zone #	Sprinkler Alarm Restore
114	1	00	Zone #	Heat Alarm
114	3	00	Zone #	Heat Alarm Restore
115	1	00	Zone #	Fire Contact Alarm
115	3	00	Zone #	Fire Contact Alarm Restore
120	1	00	Zone #	Panic Alarm
120	3	00	Zone #	Panic Alarm Restore
121	1	00	User #	Duress Trigger Alarm
121	1	00	Zone #	Holdup Alarm
121	3	00	Zone #	Holdup Alarm Restore
130	1	00	Zone #	Burglary Alarm
130	3	00	Zone #	Burglary Alarm Restore
134	1	00	Zone #	Door Monitor or Egress Alarm
134	3	00	Zone #	Door Monitor/Egress Alarm Restore
137	1	00	Zone #	Tamper Alarm
137	3	00	Zone #	Tamper Alarm Restore
140	1	00	Zone #	Undefined Alarm
140	3	00	Zone #	Undefined Alarm Restore
151	1	00	Zone #	Gas Alarm
151	3	00	Zone #	Gas Alarm Restore
153	1	00	Zone #	Cold Alarm
153	3	00	Zone #	Cold Alarm Restore
154	1	00	Zone#	Water Alarm
154	3	00	Zone#	Water Alarm Restore

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/User #	SIA Event Description
203	1	00	Zone #	Sprinkler Supervisory
203	3	00	Zone #	Sprinkler Supervisory Restore
300	1	00	000	Power Supervision Trouble
300	3	00	000	Power Supervision Restore
300	1	00	000	Service Required
301	3	00	000	AC Power Restore
301	1	00	000	AC Power Trouble
302	3	00	000	Battery Restore
302	1	00	000	Battery Trouble
304	1	00	000	Flash Checksum Error
305	3	00	000	System Power Up
333	1	Device #	000	Expansion Trouble
333	3	Device #	000	Expansion Trouble Restore
333	1	Device #	000	Modem Trouble
333	3	Device #	000	Modem Trouble Restore
335	3	00	000	Printer Paper In
335	1	00	000	Printer Paper Out
336	3	00	000	Printer On Line
336	1	00	000	Printer Off Line
351	3	00	Line #	Phone Line Restore
351	1	00	Line #	Phone Line Trouble
354	1	00	00	Data Lost
354	1	00	Priority #	Account trouble
354	3	00	Priority #	Account Trouble Restore
370	1	00	Zone #	Burglary Trouble
370	3	00	Zone #	Burglary Trouble Restore
370	1	00	Zone #	Cold Trouble
370	3	00	Zone #	Cold Trouble Restore
370	1	00	Zone #	Door Monitor Trouble
370	3	00	Zone #	Door Monitor Trouble Restore
370	1	00	Zone #	Egress Trouble
370	3	00	Zone #	Egress Trouble Restore
370	1	00	Zone #	Emergency Trouble
370	3	00	Zone #	Emergency Trouble Restore
370	1	00	Zone #	Gas Trouble

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/User #	SIA Event Description
370	3	00	Zone #	Gas Trouble Restore
370	1	00	Zone #	Heat Trouble
370	3	00	Zone #	Heat Trouble Restore
370	1	00	Zone #	Holdup Trouble
370	3	00	Zone #	Holdup Trouble Restore
370	1	00	Zone #	Panic Trouble
370	3	00	Zone #	Panic Trouble Restore
370	1	00	Zone #	Sprinkler Trouble
370	3	00	Zone #	Sprinkler Trouble Restore
370	1	00	Zone #	Tamper Trouble
370	3	00	Zone #	Tamper Trouble Restore
370	1	00	Zone #	Undefined Trouble
370	3	00	Zone #	Undefined Trouble Restore
370	1	00	Zone #	Water Trouble
370	3	00	Zone #	Water Trouble Restore
373	1	00	Zone #	Fire or Fire Contact Trouble
373	3	00	Zone #	Fire or Fire Contact Trouble Restore
401	3	Area #	User #	Close Forced
401	3	Area #	User #	Close Normal
401	1	Area #	User #	Open Normal
401	1	Area #	User #	Open Reset
401	3	Area #	User #	Exception Arm
401	1	Area #	User #	Exception Disarm
401	3	Area #	User #	Exception Force Arm
401	3	Area #	User #	Close Normal
403	3	Area #	000	Close Auto
403	1	Area #	000	Open Auto
404	3	Area #	000	Close Trouble
404	1	Area #	000	Open Trouble
412	1	00	000	Remote Program Pass
413	1	00	000	Remote Program Fail
421	1	00	Door #	Door Access Denied
422	1	00	Door #	Door Access Granted
422	3	00	Door #	Door Locked
422	1	00	Door #	Door Unlocked

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/User #	SIA Event Description
422	1	00	Door #	Door Schedule
422	1	00	000	Egress Granted
573	1	00	Zone #	Burglary Bypass
573	3	00	Zone #	Burglary Unbypass
570	1	00	Zone #	Cold Bypass
570	3	00	Zone #	Cold Unbypass
570	1	00	Zone #	Door Monitor Bypass
570	3	00	Zone #	Door Monitor Unbypass
570	1	00	Zone #	Egress Bypass
570	3	00	Zone #	Egress Unbypass
570	1	00	Zone #	Emergency Bypass
570	3	00	Zone #	Emergency Unbypass
570	1	00	Zone #	Gas Bypass
570	3	00	Zone #	Gas Unbypass
570	1	00	Zone #	Heat Bypass
570	3	00	Zone #	Heat Unbypass
570	1	00	Zone #	Holdup Bypass
570	3	00	Zone #	Holdup Unbypass
570	1	00	Zone #	Panic Bypass
570	3	00	Zone #	Panic Unbypass
570	1	00	Zone #	Sprinkler Bypass
570	3	00	Zone #	Sprinkler Unbypass
570	1	00	Zone #	Tamper Bypass
570	3	00	Zone #	Tamper Unbypass
570	1	00	Zone #	Undefined Bypass
570	3	00	Zone #	Undefined Unbypass
570	1	00	Zone #	Water Bypass
570	3	00	Zone #	Water Unbypass
571	1	00	Zone #	Fire or Fire Contact Bypass
571	3	00	Zone #	Fire or Fire Contact Unbypass
601	1	00	User #	Manual Test
602	1	00	000	Auto Test
602	1	00	000	Door Held Open
602	1	00	000	Door Restoral
602	1	00	000	User Code Added

Table 7-3: Contact ID Event Codes

Event Code	Event Qualifier	Group Number	Contact/User #	SIA Event Description
602	1	00	000	User Code Changed
602	1	00	000	User Code Deleted
602	1	00	000	User Code Tamper
607	1	00	User #	Test Start
607	3	00	User #	Test End
625	1	00	User #	Date Changed
625	1	00	User #	Time Changed
627	1	00	000	Local Program Begin
628	3	00	000	Local Program Fail
628	1	00	000	Local Program Success

7.4 ASCII Event Descriptions

If your system is programmed to send events to a printer, an ASCII description of the event is output on your printer. Table 7-4 lists the ASCII descriptions of each event.

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
Open-Close	
AREA AUTO ARMED	Auto Arm
AREA AUTO DISARMED	Auto Disarm
AREA AUTO FORCE ARMED	Auto Force Arm
AREA MANUALLY ARMED	Area Arm
AREA MANUALLY DISARMED	Manual Disarm
AREA MANUAL FORCE ARMED	Manual Force Arm
Alarm	
DURESS TRIGGER	Duress
BURGLARY ALARM	Burglary Alarm
COLD ALARM	Cold Alarm
DOOR MONITOR ALARM	Door Mon. Alarm
EGRESS INPUT ALARM	Egress Alarm
EMERGENCY ALARM	Emergency Alarm
FIRE CONTACT ALARM	Fire Alarm
FIRE ALARM	Fire Alarm
GAS ALARM	Gas Alarm
HEAT ALARM	Heat Alarm

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
HOLDUP ALARM	Holdup Alarm
PANIC ALARM	Panic Alarm
SPRINKLER ALARM	Sprinkler Alarm
SPRINKLER SUPERVISORY	Sprinkler Supervisory
TAMPER ALARM	Tamper Alarm
UNDEFINED ALARM	Undefined Alarm
WATER ALARM	Water Alarm
Trouble	
BURGLARY TROUBLE	Burglary Trouble
COLD TROUBLE	Cold Trouble
DOOR MONITOR TROUBLE	Door Mon. Trouble
EGRESS INPUT TROUBLE	Egress Trouble
EMERGENCY TROUBLE	Emergency Trouble
FIRE CONTACT TROUBLE	Fire Trouble
FIRE TROUBLE	Fire Trouble
GAS TROUBLE	Gas Trouble
HEAT TROUBLE	Heat Trouble
HOLDUP TROUBLE	Holdup Trouble
PANIC TROUBLE	Panic Trouble
SPRINKLER TROUBLE	Sprinkler Trouble
TAMPER TROUBLE	Tamper Trouble
UNDEFINED TROUBLE	Undefined Trouble
WATER TROUBLE	Water Trouble
BURGLARY TROUBLE RESTORE	Burglary Trouble Restore
COLD TROUBLE RESTORE	Cold Trouble Restore
DOOR MONITOR TROUBLE RESTORE	Door Mon. Trouble Restore
EGRESS INPUT TROUBLE RESTORE	Egress Trouble Restore
EMERGENCY TROUBLE RESTORE	Emergency Trouble Restore
FIRE CONTACT TROUBLE RESTORE	Fire Trouble Restore
FIRE TROUBLE RESTORE	Fire Trouble Restore
GAS TROUBLE RESTORE	Gas Trouble Restore
HEAT TROUBLE RESTORE	Heat Trouble Restore
HOLDUP TROUBLE RESTORE	Holdup Trouble Restore
PANIC TROUBLE RESTORE	Panic Trouble Restore
SPRINKLER TROUBLE RESTORE	Sprinkler Trouble Restore

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
TAMPER TROUBLE RESTORE	Tamper Trouble Restore
UNDEFINED TROUBLE RESTORE	Undefined Trouble Restore
WATER TROUBLE RESTORE	Water Trouble Restore
Bypass	
BURGLARY BYPASSED	Burglary Bypass
COLD BYPASSED	Cold Bypass
DOOR MONITOR BYPASSED	Door Mon. Bypass
EGRESS INPUT BYPASSED	Egress Bypass
EMERGENCY BYPASSED	Emergency Bypass
FIRE CONTACT BYPASSED	Fire Bypass
FIRE BYPASSED	Fire Bypass
GAS BYPASSED	Gas Bypass
HEAT BYPASSED	Heat Bypass
HOLDUP BYPASSED	Holdup Bypass
PANIC BYPASSED	Panic Bypass
SPRINKLER BYPASSED	Sprinkler Bypass
TAMPER BYPASSED	Tamper Bypass
UNDEFINED BYPASSED	Undefined Bypass
WATER BYPASSED	Water Bypass
BURGLARY UNBYPASSED	Intrusion Unbypass
COLD UNBYPASSED	Cold Unbypass
DOOR MONITOR UNBYPASSED	Door Mon. Unbypass
EGRESS INPUT UNBYPASSED	Egress Unbypass
EMERGENCY UNBYPASSED	Emergency Unbypass
FIRE CONTACT UNBYPASSED	Fire Unbypass
FIRE UNBYPASSED	Fire Unbypass
GAS UNBYPASSED	Gas Unbypass
HEAT UNBYPASSED	Heat Unbypass
HOLDUP UNBYPASSED	Holdup Unbypass
PANIC UNBYPASSED	Panic Unbypass
SPRINKLER UNBYPASSED	Sprinkler Unbypass
TAMPER UNBYPASSED	Tamper Unbypass
UNDEFINED UNBYPASSED	Undefined Unbypass
WATER UNBYPASSED	Water Unbypass

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
Alarm Restore	
BURGLARY ALARM RESTORED	Burglary Alarm Restore
COLD ALARM RESTORED	Cold Alarm Restore
DOOR MONITOR ALARM RESTORED	Door Mon. Alarm Restore
EGRESS INPUT ALARM RESTORED	Egress Alarm Restore
EMERGENCY ALARM RESTORED	Emergency Alarm Restore
FIRE CONTACT ALARM RESTORED	Fire Alarm Restore
FIRE ALARM RESTORED	Fire Alarm Restore
GAS ALARM RESTORED	Gas Alarm Restore
HEAT ALARM RESTORED	Heat Alarm Restore
HOLDUP ALARM RESTORED	Holdup Alarm Restore
PANIC ALARM RESTORED	Panic Alarm Restore
SPRINKLER ALARM RESTORED	Sprinkler Alarm Restore
TAMPER ALARM RESTORED	Tamper Alarm Restore
UNDEFINED ALARM RESTORED	Undefined Alarm Restore
WATER ALARM RESTORED	Water Alarm Restore
Alarm Reset	
ALARMS HAVE BEEN RESET	Alarm Reset
AREA AUTO DISARMED AND ALARMS RESET	Auto Disarm Reset
AREA EXCEPTION DISARMED AND ALARMS RESET	Exception Disarm Reset
AREA MANUALLY DISARMED AND ALARMS RESET	Manual Disarm Reset
Door Access	
DOOR ACCESS ENABLED	Door Access Enabled
DOOR ACCESS GRANTED	Access Granted
DOOR ACCESS INHIBITED	Door Access InhibitED
DOOR LOCKED (door was forced locked)	Door Locked
DOOR UNLOCKED (door was force unlocked)	Door Unlocked
DOOR LOCK SCHEDULE (door back on schedule)	Door Schedule
Test	
AUTOMATIC TEST	Auto Test Account
MANUAL TEST	Manual Test
TEST END	Test End
TEST START	Test Start

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
Exception OPCL	
AREA EXCEPTION ARMED	Exception Arm
AREA EXCEPTION DISARMED	Exception Disarm
AREA EXCEPTION FORCE ARMED	Exception Force Arm
Trouble OPCL	
LATE TO CLOSE	Late to Close
LATE TO OPEN	Late to Open
System	
ACCOUNT TROUBLE	Account Trouble Report
ACCOUNT TROUBLE RESTORE	Account Trouble Restore Report
AC RESTORAL	AC Restore
AC TROUBLE	AC Trouble
CANCEL REPORT	Report Canceled
DATA LOST (failure to communicate)	Data Lost
DATE CHANGED	Date Changed
EVENT MEMORY CLEARED	Event Memory Cleared
EXPANDER TROUBLE	Expander Trouble
EXPANDER TROUBLE RESTORE	Expander Restore
EXTERNAL MODEM TROUBLE	Modem Trouble
EXTERNAL MODEM TROUBLE RESTORE	Modem Restore
FLASH CHECKSUM ERROR	Flash Checksum Error
LOCAL PROGRAM BEGIN	Local Program Begin
LOCAL PROGRAM FAIL	Local Program Fail
LOCAL PROGRAM SUCCESS	Local Program Success
PHONE LINE RESTORAL	Phone Line Restore
PHONE LINE TROUBLE	Phone Line Trouble
POWER SUPPLY RESTORED	Power Supervision Restore
POWER SUPPLY TROUBLE	Power Supervision Trouble
PRINTER OFFLINE TROUBLE	Printer Off Line
PRINTER OFFLINE TROUBLE RESTORE	Printer On Line
PRINTER OUT OF PAPER TROUBLE	Printer Paper Out
PRINTER OUT OF PAPER TROUBLE RESTORE	Printer Paper In
REMOTE PROGRAM FAIL	Remote Program Fail
REMOTE PROGRAM SUCCESS	Remote Program Success
SERVICE REQUIRED	Service Required

Table 7-4: ASCII Event Descriptions

Event	ASCII Description
SYSTEM BATTERY RESTORAL	Battery Restore
SYSTEM BATTERY TROUBLE	Battery Trouble
SYSTEM POWER UP	System Power Up
TIME CHANGED	Time Changed
USER CODE ADDED	User Code Added
USER CODE CHANGED	User Code Changed
USER CODE DELETED	User Code Deleted
USER CODE TAMPER	User Code Tamper
Door Access Denied	
DOOR ACCESS DENIED	Access Denied
Door Exit	
DOOR EGRESS	Egress Granted
Door Left Open	
DOOR HELD OPEN	Door Held Open
DOOR RESTORAL	Door Restore

Section 8

Troubleshooting

The Model 4821/4820 has been designed to prevent many common installation errors. Error messages that display on the touchpad LCD or download software screens help identify the location of the problem.

8.1 Error Messages

Table 8-1 below describes system error messages that could display on the LCD and, when applicable, suggests solutions.

Table 8-1: System Error Message:

Message	Possible Cause / What to Do
4815 Trouble	System is not communicating with a 4815. Check SBUS connection.
4824 Trouble	System is not communicating with a 4824. Check SBUS connection.
4825 Trouble	System is not communicating with a 4825. Check SBUS connection.
4880 Trouble	System is not communicating with a 4880. Check SBUS connection.
Account Trouble	A reporting account selected as Must Report was unable to report to.
Auxiliary Power Trouble	Voltage on +12V (auxiliary power) terminal is lower than 12VDC.
Battery Trouble	Battery voltage is less than 10.2 VDC. Check battery voltage. When disconnected from the system, voltage should be greater than 12 VDC. Remove battery and measure charging voltage across battery leads. Should measure greater than 13 VDC. (Range is 10.0 to 13.8.)
Dialer Failed	Dialer was not able to communicate within the specified number of attempts.
Flash Checksum Error	Model 4821/4820 self-diagnostics has encountered a system problem. System flash memory options may have become corrupted. Attempt to download the panel (or download again if you have just performed a download).
Keybus Trouble	SBUS communication problem. Message displays if touchpads have power and ground connection, but data lines are reversed or missing.
No AC Power	Two possible causes for this message: 1. AC is less than 102V. Check outlet. 2. Transformer may be bad. Measure secondary output for 17-20 VAC.
Phone Line 1 or 2 Trouble	Check phone line for voltage greater than 6 VDC.
Printer Offline	Check printer connection to 4824. Check power to the printer.

Table 8-1: System Error Message:

Message	Possible Cause / What to Do
Printer Paper	Check printer paper. Check connection from printer to 4824.
Re-initializing...Please Wait	A download has been completed; new data is being installed. This is a normal message. Several other messages will display during this process. Re-initialization is complete when the time and date displays on the LCD. Do not power down the system during re-initialization. Doing so may cause the data to be installed incorrectly.
Reminder: Auto DST is Active	When you set the system time, this message displays to remind you that the automatic daylight savings time adjustment option has been enabled.
Smoke Detector Power Trouble	Remove any devices connected to +SMK terminal. Measure voltage from +SMK to GND. Should measure 10-14 VDC.
System Trouble	A system trouble condition exists. Press [STAT] to display the type and location.
Touchpad Trouble Name or location of the touchpad is on the second line of the display.	System is not communicating with a touchpad. Check SBUS connection.
Transfer Unsuccessful	The download was unsuccessful. Retry downloading. Check phone lines for hum or static. Disable call waiting.

8.2 Before You Call Technical Support

Silent Knight Technical Support staff can help you with problems that come up when installing a system. However, before you call Technical Support, follow the guidelines listed below. You may be able to solve the problem yourself and save a lot of time. Even if you need to call Technical Support after trying these steps, you will still save time by gathering information that will help Technical Support serve you better.

1. Don't panic. (Always the first step whenever a problem comes up!)
2. Check your manual for suggestions. Re-read the installation section for the device you are installing.
3. Verify that a problem exists. Try to replicate it.
4. Check connections.
5. Isolate the problem. Remove other devices that may be interfering.
6. Once you have isolated the problem, change one thing at a time. (Do not change anything until you have isolated the problem.)
7. Try to answer the following questions:

Has the problem occurred before? If so, how was it solved then? (It is always a good idea to log problems and solutions so all installers can find and review them.)

Has anything changed recently or has anyone else worked on the system since the last time you worked on it?